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Cem M. Basman

A NOTE FROM THE EDITOR

As editor of the *Journal of Interpretation Research*, I am often contacted by individuals seeking published definitions of heritage interpretation. Whether cultural, natural, environmental, or any other context sought, finding literature specific to defining interpretation is difficult. Once the definitions provided in textbooks, training manuals or proceedings are exhausted, very little information can be found to cite as credible sources for understanding and explaining the meaning of heritage interpretation. The *Journal of Interpretation Research* is founded on the premise of publishing theoretically and empirically based original research, as well as to provide a forum for scholarly discourse issues and topics current to the profession of interpretation. Therefore, we are the logical source to supply definitions of interpretation. The current special issue of our publication will be dedicated to defining heritage interpretation as perceived by the academic and heritage resource-management perspectives.

Six distinct perspectives on defining heritage interpretation by a distinguished list of authors are offered in this issue of the *Journal of Interpretation Research*. In their contribution, Larry Beck and Ted Cable explore the depth and complexity of interpretation by gleaning the meaning contained within profession. As they state, "… the precise definition of interpretation may just be beyond reach…." Lisa Brochu and Tim Merriman take a historical perspective of the interpretive profession and define interpretation within the context of the current professional certification program inaugurated by the National Association for Interpretation. Discussing what interpretation is not, while introducing the concepts of interpredata, interpretainment, interpreganda, and interprecation, Dave Larsen explores the responsibilities of interpreters to their public in the publication of a presentation originally made to the George Wright Society Conference in 2001. A regular journal contributor, Wilbur LaPage seeks to make the emotional connection to defining the intrinsic meaning of heritage interpretation. Ross Loomis approaches our definition effort from the specialty area of visitor services in his exploration of the exist-

ing evaluation research as it relates to heritage interpretation. George Wallace, who introduces the interpretive technique of the "Authority of the Resource," provides the final contribution for this special issue of the *Journal.* This refereed article explores how interpretation can be defined by the actions of the professional interpreter in natural settings.

The *Journal of Interpretation Research* will devote future special topic issues for the purpose of capturing the current scholarly perspectives and definitions of heritage interpretation. We hope the information contained in these pages will help the reader or the researcher to further understand, appreciate, and question the state of the heritage interpretation profession.

—CMB

Larry Beck and Ted Cable

THE MEANING OF INTERPRETATION

I've been working with the concepts of interpretation for about 25 years, and I still don't know what it is, though I've got some ideas, and I've written a lot of definitions. But I was never completely satisfied with them.

—Freeman Tilden

Like Freeman Tilden, we have been working with the concept of interpretation for about 25 years and have had some ideas and have written some definitions and principles. And like Tilden we still don't fully know what interpretation is. Therefore, we are glad to be in the good company of several colleagues as we grapple with the meaning of interpretation. Perhaps all of our voices will help fill in the pieces of the puzzle. For our part, we will address the meaning of interpretation at its deep and philosophical level—where, for us, the concept is most interesting and most promising.

Part of the attraction of interpretation is its mystery. There is something unfathomable about it. Like religion, there is paradox, but that only lends itself to the power inherent in interpretation. If you could clarify it precisely, it would lose some of its power. Barry Lopez (1998) described men and women engaged in the passionate and spiritual realms of life as being "people for whom mystery was not a challenge to intelligence but a bosom" (p.12). To those practicing interpretation as a profession there is always an ideal out there, just out of reach. As Tilden (1977) pointed out, we are humbled because we fall short, in our own judgment, "of the flying perfect" at which we aim (p. 90).

Interpretation as Revelation

At one level interpretation is a form of communication having an educational function (as most definitions we have seen point out), with messages typically involving our natural legacy and/or cultural heritage. Both Mills (1920) and Tilden (1977) addressed the importance of going beyond merely teaching facts to revealing meanings inherent in the resource that are relevant to the audience. For example, Mills (1920)

wrote, "The aim is to illuminate and reveal the alluring world" (p. 130).

Interpretive trainers with the National Park Service have elaborated on this to indicate interpretation makes links between tangibles, intangibles, and universal concepts. The power of the resources we interpret comes from their capacity to reveal meanings, the intangible qualities of the place or event, those things that move our souls (Beck, 2001; McCullough, 2002). The charge of the interpreter, then, is to help make the connection between the tangible and intangible meanings of the resource in the hearts and minds of the visitors.

An entire group of intangibles can be labeled "universal concepts" (beauty, freedom, community, courage) because almost everyone can relate to them, but not in the same way (Larsen, 2000). It is a creative act to reveal deeper meanings from tangible objects and to relate those meanings to universal concepts. Each interpreter will interpret differently, just as each person will respond differently to the interpretation.

Interpretation as Art

According to Mills (1920) and Tilden (1977), interpretation is an art form. Like any art, meaningful interpretation takes time. It is a creative act, bringing together disparate parts to make a whole. It is highly individualistic. Each interpreter's product will be different—personalized by one's background, experience, knowledge, imagination, creativity, and tenacity. The interpreter is taking the elements of a landscape or events from history, and relating them to broader meanings through his or her own experience.

An interpretive experience is among the art forms that can transform us. It can be in the company of theater or a life-changing book. But that same dramatic performance or piece of literature may not have a similar impact on everyone. We each read books and observe theater as no one else does. Likewise, the response to interpretation is deeply personal and individualistic.

Effective interpretation is successful in creating opportunities for people to form their own intellectual and emotional connections to the meanings and significance associated with a place (Larsen, 2000). Moreover, many people respond entirely to the inspirational powers of nature without the assistance of outside interpretation—indeed, they may create their own inspired works, their own expressions of creative response (LaPage, 2001). So, interpretation is personal both in its development and in its reception.

Interpretation as Gift

We have argued that interpretation is needed now more than ever with special emphasis on certain universal concepts (Cable & Beck, 2001). At historic sites, interpretive programs offer opportunities to better understand our history and to reflect on such universal concepts as liberty, justice, and civic responsibility. Many of our cultural sites celebrate the drama of human conduct—men and women who have exhibited great courage and integrity in the face of adversity. Natural history programs offer opportunities to connect with the beauty of the landscape—the stability, predictability, and resilience of nature. The splendor of the environment and a greater understanding of its wonders can comfort and inspire us. Through interpretation we enhance understanding and appreciation of our cultural and natural legacy—that which defines us as a democracy. We help others to see the meanings carried within a landscape or an event in history, and in that regard our work is a gift to our audiences.

Lewis Hyde (1983) described a work of art as a gift. If interpretation is an art (Mills,

1920; Tilden, 1977), and a work of art is a gift, then it follows that interpretation is a gift. The interpreter, like the artist, bears a gift that may have multiple meanings and can transform lives. As we stated in *Interpretation for the 21st Century:*

> *Our response to such art (this may be the place itself, the interpretation of the place, or a combination of the two) may illumine our world, foster our recognition of beauty, generate an energetic optimism, stimulate our sense of truth, revive the soul, set us on a courageous course of action, or simply overwhelm the senses. In the presence of meaningful art, we feel as if we have been touched by a resonating chord. At its absolute best, this is what all art, including interpretation, is about.* (Beck & Cable, 1998, pp. 204-205)

Inspired interpretation will offer a multitude of gifts depending on the recipients' needs, desires, and ability and willingness to accept the gift. As in any gift-giving, the giver wishes to please those receiving the gifts. Therefore, we must know something about those we interpret to. The best gift is one that offers something personal based on an understanding of the recipient.

To some people, interpreters provide the gift of knowledge, to others the gift of community, to others the gift of epiphany. Interpreters set the stage for great memories. Interpreters can provide the backdrop for an optimal experience so deep it cannot be fully described—when one feels a sense of exhilaration, a greater joy in living, a better understanding of one's place in the overall scheme, a positive hope for the future. We offer gifts of compassion and caring. We share the gift of love, which Tilden (1977) described as "the priceless ingredient" of interpretation.

The Gift of Hope

As long as matters are really hopeful, hope is a mere flattery or platitude; it is only when everything is hopeless that hope begins to be a strength. Like all the Christian virtues, it is as unreasonable as it is indispensable.

—G.K. Chesterton

Most of all, we believe, interpreters give the gift of hope. Our world is a place of incredible beauty and great joy, but also a place of environmental degradation and tremendous human suffering. We live amidst acts of cowardly terrorism and heroic compassion. If we are mired in fear, helplessness, or pessimism, then we are immobilized. Hope is indispensable.

Scott Russell Sanders (1998) wrote:

> *As we transform our own lives, we join with others who are making a kindred effort, and thus our work will be multiplied a thousandfold across the country and a millionfold around the earth. Whether all such efforts, added together, will be enough to avert disaster and bring about a just and enduring way of life, no one can say. In order to live in hope we needn't believe that everything will turn out well. We need only believe that we are on the right path* (p.187).

To give hope interpreters themselves must possess hope to share with others. Interpreters without hope in the future would offer a hollow message. They would lack the motivation and passion that comes from believing people have the power to change things for the better.

Hope is *indeed* indispensable. The greatest risk to both individuals and society is loss

of hope for the future. A loss of hope that we can improve our personal lives, our communities, and our world leads to apathy, anger, or despair. Interpreters can offer hope to individuals for a rich, fulfilled life and hope in a future whereby generations to come inherit a prosperous and beautiful world. *The beauty of human integrity commemorated in events of the past and the beauty of the intricacies of nature give rise to hope, and these are the tools of the interpreter.*

So interpretation is a process of profound gift-giving. This process has many nuances and lacks precise definition, but that is the mystery of interpretation. In our estimation, it is fitting that a precise definition of interpretation is just beyond reach. Indeed, it is probably better that way. For gift-giving should not be directed by definition, but it should come from a conviction of the heart.

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Lisa Brochu and Tim Merriman

REDEFINING INTERPRETATION AS A CORE BELIEF FOR CERTIFICATION OF PROFESSIONALS

The National Association for Interpretation (NAI) traces its organizational roots to the Association of Interpretive Naturalists (AIN) formed in 1954 and the Western Interpreters Association (WIA) founded in California in 1962. For 45 years, the organization did not define the most important word in its name, "interpretation." When asked for the association's official definition of interpretation, staff members deferred to Freeman Tilden (1957). It was not a controversy at Board meetings that the association had not endorsed a specific definition. There simply had been no pressing reason for the Board of Directors to focus its interests on that specific challenge. When AIN and WIA became NAI in 1988, the consolidation committee and both Boards of AIN and WIA had serious discussions about the new name. Should it be the National Association for Interpreters or the National Association for Interpretation? It seemed a subtle but important distinction. It became clear that a choice had to be made between a professional association for practitioners (interpreters) or for the profession (interpretation). Most of the decision makers at the time believed that NAI's purpose was to be the "recognized voice of interpretation," the profession. Both parent organizations had previously organized around the practitioners as the Western Interpreters Association and Association for Interpretive Naturalists. It was a somewhat bold departure from that thinking to identify the merged group with the profession, not the professionals. NAI would not be a club for interpreters. It would be a professional association that would serve a diverse membership and focus on its organizational mission, which is:

To inspire leadership and excellence to advance natural and cultural interpretation as a profession.

This general belief in 1988 was later confirmed in the spring of 1996 during the development of the first strategic plan for NAI. The Board identified five vision goals for the association. Among them was the statement:

NAI becomes international voice for interpretation.

This statement made the point that the association aspires to speak for the profession throughout the world. The decision to function more internationally was based upon a belief that wisdom is not the sole province of American interpretive institutions. Moreover, it has been the observation that few other nations have professional interpretive associations or the financial resources to work on these issues.

In 1997, NAI member Lisa Brochu offered to design a certification program for NAI that would permit conferral of professional credentials. The approval of that offer by the Board of Directors would prove to be an important step in the maturation and institutionalization of the association. The changes since that time have built on historical foundations provided by a variety of pioneers in the field.

Historical Perspectives for a Definition of Interpretation

John Muir

John Muir, founder of the Sierra Club and champion of Yosemite National Park, wrote "I will interpret the rocks, learn the language of flood, storm and the avalanche, I'll acquaint myself with the glaciers and wild gardens, and get as near the heart of the world as I can." (Wolfe, 1945, p. 144) To many this inspirational quote is an early reference to interpretation as an approach to communication. His poetic writing conveyed his belief that getting close to nature gave people an understanding of the world they couldn't get in books or from machines. Muir met a young man on a beach in California who would come to be the first American voice for interpretive guiding, Enos Mills. He showed Mills Yosemite Valley and encouraged him to write and speak on behalf of protecting resources of national value.

Enos Mills

Born in 1870 in Fort Scott, Kansas, Enos Mills moved to Long's Peak in Colorado in 1884. He started one of the first nature-guiding schools in the world and personally led 257 groups up Long's Peak in what is now Rocky Mountain National Park. His nineteen books, including the 1920 volume, *Adventures of a Nature Guide*, provide a lasting legacy to the interpretive profession.

Many of the observations Mills made about nature guiding are evident in later definitions by Tilden and others, though often not attributed to Mills. In a chapter entitled, "A Day with a Nature Guide," Mills (1920) wrote:

> *The nature guide is at his best when he discusses facts so that they appeal to the imagination and to the reason, gives flesh and blood to cold facts, makes life stories of inanimate objects. He deals with principles rather than isolated information, gives biographies rather than classifications. People are out for recreation and need restful, intellectual visions, and not dull, dry facts, rules, and manuals. What the guide says is essentially nature literature rather than encyclopedia natural history.* (p. 126)

Mills suggested that information alone is not adequate, an idea locked into one of Freeman Tilden's six principles of interpretation in 1957. Interpreters are trying to tell a more complete story. Mills said of a guide, "His chief aim was to arouse a permanent interest in nature's ways, and this by illuminating big principles."

This statement reads very much like Tilden's principle about telling the whole story to the whole person. Mills became more direct in setting up a future definition for interpretation in saying:

> *The aim is to illuminate and reveal the alluring world outdoors by introducing determining influences and the respondent tendencies. A nature guide is an interpreter of geology, botany, zoology, and natural history.*

This reference to illuminating and revealing the world became a common description of the role of the interpreter. It's almost a definition of interpretation, though it is not delivered to us as more than an observation. And Mills was first to say, "a nature guide is an interpreter...."

Mills finished the chapter, "A Day With a Nature Guide," with an oft quoted prediction for the interpretive profession: "Ere long nature guiding will be an occupation of honor and distinction. May the tribe increase!" (1920, p. 131)

Freeman Tilden

When AIN was created in 1954 by about 40 naturalists attending a meeting at Bradford Woods, Indiana, it became the first American professional network for resource communicators. They preferred the term interpretive naturalist at the time. At about that same time Freeman Tilden was being funded by a grant from the Old Dominion Foundation to the National Park Service to study and document the vital role interpretation plays in our national parks.

Tilden would publish his classic book, *Interpreting Our Heritage*, in 1957 and it has endured as one of the most respected resources in our field. His six principles are still taught in virtually all interpretive courses as the foundation blocks of the profession. Ted Cable and Larry Beck's 1998 book, *Interpretation for the Twenty-first Century*, took on the challenge of updating the principles of the interpretive profession. Their first six of fifteen principles are paraphrases of Tilden's six principles. Tilden also provided a definition that endured until the past two years as the most used description of the profession. He sounded almost reluctant in his written lead to introducing the definition by saying:

> *For dictionary purposes, to fill a hiatus that urgently needs to be remedied, I am prepared to define the function called Interpretation by the National Park Service, by state and municipal parks, by museums and similar cultural institutions as follows: An educational activity which aims to reveal meanings and relationships through the use of original objects, by firsthand experience, and by illustrative media, rather than simply to communicate factual information.* (p. 8)

Sam Ham

Sam Ham published *Environmental Interpretation: A Practical Guide for People with Big Ideas and Small Budgets* in 1992, and it has become one of the most respected texts in the interpretive field. Ham quotes Tilden's definition, but does not tender a definition of his own. He did make a statement of description that is often quoted as a definition by others. That is: "Interpretation is an approach to communication . . . translating the technical language of a natural science or related field into terms and ideas that people who aren't scientists can readily understand" (p. 3)

Ham's description of interpretation is functional and oriented toward the environmental fields, though his approach to thematic interpretation has been as useful to cultural interpreters as those working with natural history and science. It does aptly describe the job of the interpreter working for a natural science agency or organization. Translating ideas into the language of varied audiences to create understanding is very similar to Tilden's notion, "to reveal meanings and relationships."

National Park Service Competency Program Model

Since 1996, the Mather Training Center interpretive training staff, under the supervision of David Dahlen and Superintendent Mike Watson, have created the Interpretive Development Program (IDP). This ambitious system has led to submission standards for twelve different competencies which may be seen at http://www.nps.gov/idp/interp. With the aid of Maryland Department of Education they developed rubrics, essentially narrative tests or definitions, used to evaluate personal and non-personal interpretive programs and products by peer reviewers. They used training workshops to develop reviewers who understand the rubrics and the practical approaches to evaluating videos, narrative items, and products submitted.

An important part of their program development was a series of workshops with several chiefs of interpretation and career professionals with NPS to discuss their beliefs and assumptions. One statement they describe as the basis for their rubrics also served as the basis from which NAI adapted its definition. That statement is: "Interpretation facilitates a connection between the interests of the visitor and the meanings of the resource."

NAI's Certification Program and the Need for a Definition

Although NAI and its parent organizations found it relatively easy to ignore the need for a definition of interpretation, the discussion about whether interpreters could or should be certified and by whom seemed to be the discussion that would not die. For two decades, various committees examined the need and desire for certification of interpreters. Market studies indicated that at least a third of the membership was strongly in favor of certification, another third was just as strongly against it, and the remaining third was ambivalent. Based on this information, the decision to go ahead with a certification program seemed a reasonable response to market demand, but the diversity of experience and educational backgrounds and job descriptions of NAI members made it difficult for committees to reach consensus on what constituted a fair and equitable way to recognize professional excellence without excluding anyone on the basis of how they came into the profession or their current job title. Establishing standards that crossed the lines of employer, education, and experience required a fresh look at the profession as a whole and more specifically, the NAI membership. Four categories of professional certification seemed to encompass the many varied jobs of those involved in the interpretive profession who were not already certified by other professional organizations. The categories of Certified Heritage Interpreter, Certified Interpretive Manager, Certified Interpretive Planner, and Certified Interpretive Trainer require that the applicant have a background in interpretation, but that background can come from education or experience. Specific guidelines for each of those categories can be found on the NAI website at www.interpnet.com.

As the certification program developed, it became essential to define what interpreters do as the common thread that transcends job description or background. In 1999, a definition was approved by the Board and revised in 2000. The resulting definition has been accepted by NAI as the most recent and most accurate definition. It states that "interpretation is a communication process that forges emotional and intellectual connections between the interests of the audience and the inherent meanings in the resource."

Once the definition emerged, it became apparent that the certification program did not address a significant number of those who practice interpretation in the field. Discussions with the Federal Interagency Council of Interpretation and a variety of non-governmental organizations revealed that literally hundreds of thousands of volunteers,

docents, tour guides, and other seasonal, temporary or new hires were "doing" interpretation, but had relatively few training opportunities available to them other than crash courses on content appropriate for the site. Consequently, these frontline interpreters often have difficulty forging those emotional and intellectual connections that are critical for what NAI considers excellent interpretation.

In 2000, a new certification category arose that allows NAI to work towards its mission of inspiring excellence by raising the quality standard for interpretation through basic training. The Certified Interpretive Guide category requires applicants to attend a 32-hour training course focused on interpretive philosophy and technique rather than content. Designed for those without any previous background in interpretation, the CIG training course is based on NAI's definition of interpretation and helps participants learn how to communicate in a way that forges emotional and intellectual connections between the interests of the audience and the inherent meanings in the resource, whether that resource is an historic building, a seashore, or a piece of modern art. The philosophy and techniques taught are based on social science research and the good work of recognized authorities in the field, transcending the type of site or resource information.

The CIG curriculum provides a standardized format for training built around NAI's definition of interpretation. It is being adopted as basic training and a minimum qualification for employment by a growing number of private companies, government agencies, and nongovernmental organizations. The program is also being adapted for use in university classrooms and translated into other languages for use internationally. As the popularity of the CIG program increases, NAI's definition of interpretation will become more widely known and accepted as the standard for the profession.

The Evolution of a Definition and NAI's Certification Program

NAI's certification program continues to evolve as the categories, requirements, course materials, and evaluation instruments are constantly reviewed, revised, and improved. The definition of interpretation will also continue to evolve as new information emerges and the profession grows. The NAI definition, as presented in NAI certification courses by Brochu and Merriman (2002), does not fully address the importance of interpretation to managing our global heritage resources. It is, however, a step in the right direction that makes interpretation easier to understand and explain than ever before.

Fine-tuning the definition in the future will create a true standard for the profession that is supported by NAI's certification program in all categories. As all of these pieces begin to be seen as part of a whole, the profession will begin to mature. Most importantly, with the inextricable linkage of the definition of interpretation and certification of interpretive professionals, NAI will continue to find new ways to serve as the international voice of interpretation as it inspires leadership and excellence to advance interpretation as a profession. NAI's Certified Interpretive Host credential and curriculum, introduced in 2003, teaches informal interpretation to maintenance workers, law enforcement officers, cashiers, receptionists, volunteers and campground hosts, using NAI's definition of interpretation. This means that a common definition will not only be used among most members of the profession but among the many co-workers of interpreters at diverse sites.

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BE RELEVANT OR BECOME A RELIC

Meeting the Public Where They Are

Originally presented at the George Wright Society Conference, April 19, 2001

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Loren Eisely once wrote, "Life is a series of shooting sparks—all the rest is interpretation." Most readers who are scientists or resource managers know science is capable of measuring, describing, and explaining much if not all of Eisely's shooting sparks. I agree with them. For the scientist, some truths exist. Sure, attaining certainty is not easy. Those who know science understand that data requires interpretation and that explanations are challenged, refined, and change with the passage of time. Yet science assumes that if verifiable questions are asked and appropriate tests conducted, unified explanations, laws, schemes, models, and theories regarding nature are possible.

In the 21st century, the resources we have been charged to protect and manage will come under increasing pressure. I used to think I wanted to be a superintendent. Not now. It's an incredibly difficult job. A manager has so many people to answer to—so many perspectives to consider. Most of those stakeholders do not have the scientific literacy of most resource professionals. What's more, scientific explanation holds little relevance or power for many, even when they comprehend. People understand, value, and order life and nature in an incredible variety of ways for just as incredible a variety of reasons. Regardless of whether science does or does not provide the best explanations of the physical world, its boundaries do not contain all, or even close to all, constructions of meaning.

Whether that is good or bad, or whether science provides access to the only truth, are not a questions I am willing to debate. I think, though, we can all agree that different perspectives and ways of finding meaning in the resource exist. I present a vision of the profession of interpretation as well as suggest a relationship between interpretation and resource management, because I believe that embracing the variety of meanings that audiences see in the resources we protect and manage is a critical strategy for preservation.

Interpretation is a budding profession. It is in the process of defining its purpose, standards, and language. One of the problems with interpretation so far has been that there have been too many interpretations of interpretation.

One caricature holds interpretation to be interpredata. A quick joke: Too often, asking an interpreter a question is like trying to take a drink of water from a firehose. All that pressure and volume can be overwhelming. Unfortunately, such an approach ignores the reality that scientists, historians, and anthropologists all use data to say something about their subject. Even more importantly, interpredata fails to help the audience make personal connections to the resource. All interpretation must be built upon accurate and comprehensive information, but if audiences were simply seeking knowledge, most would have little reason to experience the site at all.

Another outlook describes interpretation as interpretainment. This perspective is satisfied with a pleasant visitor experience and holds that interpretation is valuable only because it is entertaining. Certainly good interpretation needs to entertain and connect to audience interests, but interpretainment warps the concept and fails to connect the visitor to the resource. It places the resource in the same arena with Disneyland.

Interpreganda is another. The primary goal of interpreganda is to convince the audience of the singular validity of a particular ideological or agency perspective. Audiences often know when they are being told how to think and don't like it. Interpreganda is mostly effective for visitors that already share the articulated point of view. Interpreters need to say something significant about their places, but proselytizing can do a great deal of damage.

Finally there is interprecation. While education and interpretation are related and often overlap, there are significant differences between the two. Educational goals are usually directed at specific learning objectives. Formal education embraces, to varying degrees, testing and teacher accountability. Interpretation should support those goals. Partnerships with schools, Elder-hostels, scout, and church groups connect resources with institutions that have long-term influence over learning. However, interpretation can't be constrained by a test of knowledge at the end of a program. Learning happens in many ways outside the classroom and even outside the field trip. There must be more.

The National Park Service's Interpretive Development Program has been in existence since 1995. It sets standards of excellence and provides learning resources that motivate and enable interpreters to create opportunities for the public to form their own meaningful connections with the resource. The Interpretive Development Program was created by more than 300 field interpreters and is comprised of a curriculum that supports professional development in 10 interpretive competencies, such as talks, tours, interpretive writing, educational programs, media, and planning. The Interpretive Development Program also has a functioning peer-review certification system for each of those competencies.

The Interpretive Development Program views the resources we work with as tangible places and things and also considers the intangible meanings those tangible resources represent. Intangible meanings include, among others: systems, processes, relationships, values, ideas, and beliefs. Tangible resources can be viewed as icons that focus and reveal intangible meanings or connect the observers to something larger than themselves. This is true for the resource as a whole, as well as for all its parts, flora and fauna, furniture, and landscape.

What is essential to understand here is that tangible resources have little value for an audience or potential constituency without their context of intangible meanings. Further, those meanings derive, for the audience, a specific power and relevance because of their association with the tangible thing. Tangible and intangible resources require a connection or link to one another.

The Interpretive Development Program suggests that protecting and managing the tan-

gible resource alone is not enough. Perhaps Tanaka Shozo, an eminent Japanese Conservationist who died in 1911, said it best:

"The care of rivers is not a question of rivers but of the human heart."

Shozo uses the word *care* to refer to the tangible resource management that we are all familiar with. In that sense, he uses care in terms of *care for*—we all work to care for the tangible resource. Yet Shozo tells us that care is not about the tangible resource, rather it is "of the human heart." In this way, Shozo uses care in terms of *care about*. How can anyone come to support the care for the tangible resource unless they first come to *care about* the resource.

In essence, Shozo describes the role of interpretation. By linking tangible resources to their intangible meanings, interpretation helps audiences both care *about* and encourages them to care *for* resources.

This only occurs when resource professionals—and that would be you—understand the sovereignty of the visitor. Don't misunderstand. When I say the visitor is sovereign, I am not suggesting the customer is always right. Most of us work for protection agencies and appropriately prevent audiences from doing physical harm. However, in terms of what visitors believe, think, and feel, they are sovereign. No matter how much confidence we may have in our science and our professional procedures, no matter how enthusiastic and polished our presentations, the audience ultimately decides if the resource has value. The audience determines if they will care enough about the resource in order to support the care for the resource.

This requires that interpreters and other resource professionals meet audiences on their own ground. While it is easier to speak and write for those who understand our rules and think the way we do, an understanding of the resource challenges that lay before us will quickly illuminate the need to cultivate the support of the broadest possible spectrum of people and points of view.

The role of interpretation is to facilitate connections between the meanings of the resource and the interests of the visitor. Interpretation does not provide answers; it poses questions. Interpretation does not teach; it offers opportunities for emotional and intellectual connections. Interpretation does not educate; it provokes increasingly sophisticated appreciation and understanding. Interpretation does not tell people how it is; it reveals personal significance.

Central to effective interpretation is the understanding that resources possess a plurality of meanings. These meanings come from a variety of sources.

Meanings may be grouped in at least two important categories: ascribed and inherent. Donald Worster, the preeminent scholar of environmental history, writes of the Grand Canyon, "Environmental history looks very different if you stay up on the plateau, prowling around the human structures that have accreted here, than if you plunge deep within the chasm."[1]

First the ascribed.

Again Worster: "What we mean by nature profoundly depends on who is speaking and at what point and place in time. It is culturally determined." Surely most sites—natural, historic, and cultural, have been affected by the changing scholarship, tradition, folkways,

[1]All Daniel Worster quotes from the transcript of a paper presented by Worester at Albright Training Center, May, 2000.

societal conflict, geographical influences, and group identity that comes with time. Indeed, many will say that all meanings are the subjective projections of the values and beliefs of people in various cultures. It might be argued that parks, refuges, reserves, and museums are by definition cultural abstractions identified and labeled as something of value—something worth saving.

Yet others resist the abandonment of a reality or truth. They may recognize and even be interested in ascribed meanings, but for them, the resource has meanings that can only be described as inherent. Donald Worster recognizes that possibility as he leads the reader on a walk to Phantom Ranch at the bottom of the Canyon. "Something more, something larger, looms and impresses, challenges and defines. Beneath all the texts, beneath our constructions, a real Canyon, I believe, is out there, one that can be discovered and revealed, not merely one created by elites or nonelites."

This revelation of the larger seems to be an essential function of science, the discovery and explanation of the inherent—the real.

But are inherent meanings restricted to the scientific? Worster doesn't comment, but ask a Hopi about the inherent meaning of the Canyon. If that person chooses to share something of significance and value they might describe a particular place in the Canyon as the source of their origin.

How about an artist—someone who moves in the ether of color or sound? Is the inherent meaning for them materialistic, theological, mythological, or aesthetic? Perhaps all of them?

The distinction between ascribed and inherent is important as meanings provide the fiber for personal connection—intellectual, emotional, and perhaps spiritual, for those who may or may not exercise stewardship. Those who hold a place dear often do so because they believe it contains the truth. It is difficult for them to see that others could view the place differently. And of course, here is the difficulty, one person's or audience's inherent meaning is another's ascribed.

The Interpretive Development Program holds that all these meanings, and many more, provide reason enough to care about the resource and develop grounds for caring for the resource. All are invited to declare with certainty that which is inherent and obvious, and that which is ascribed. The profession of interpretation has no need—or mandate from a democratic government, for that matter—to choose or disregard a particular truth. The profession of interpretation has a much more practical mission: to provide for both the protection and enjoyment of resources that connect us to our heritage—and perhaps for our very survival.

Don't misinterpret me. I am not advocating a relativism that holds all data, stories, and interpretations to be of equal value. The reader knows, certainly better than I, which ones hold the truth.

Interpretation in the field is a practical thing. What is relevant to the audience determines the starting point for successful interpretation. When interpreters do their jobs well, they meet visitors at the place where resource meanings are relevant to them, where the truth is inherent for them, and then provide additional opportunities for personal emotional and intellectual connections.

There is a marketplace of relevant meanings out there. Audiences are the customers. Interpreters need to recognize and be fluent in the meanings that are attached to their site, meanings that are common and those which are more obscure. In places where science is an

important part of the story, it will be a relevant and sought after commodity by a significant part of the audience. At those sites, leaving science out or diminishing its influence and power by automatically providing equal time to other perspectives simply won't be relevant to the majority of audiences.

But interpretation cannot just pander to existing perspectives. It also has the responsibility to provoke new feelings and new thinking. This responsibility to provoke is critical for satisfying the audience's desire to find something of personal value. Provocation provides access to ever greater complexity, understanding, appreciation, and attachment. It also allows for the accurate articulation and description of a variety of potential meanings.

Two examples:While interpreting a feature in terms of geologic time I might become aware that the person I am speaking with is a Creationist. To successfully provoke, I must first establish personal relevance. Dismissing creationism or taking up the evolutionist side of a dichotomy fails to do this. A successful interpreter, in these circumstances, knows that it is possible to believe in God and evolution and that many creationists embrace aspects of science. The individual may be a Flat Earther, a Geocentrist, a Young-Earth Creationist, an Old-Earth Creationist, a Gap Creationist, a Day-Age Creationist, a Progressive Creationist, an Intelligent Design Creationist, an Evolutionary Creationist, a believer in Theistic Evolution, or something else all together. *Whichever perspective the individual adheres to, their support for and participation in preservation and stewardship is equally valuable.*

An appropriate interpretive strategy might be to ask "You're a creationist—what kind?" The answer might allow us to discuss ways in which the feature might fit into the individual's belief system. In the exchange, I might agree that many creationists employ the methodologies and processes of science. In this way I'm hoping to establish personal relevance and an opportunity to provoke. I might use the conversation to move into descriptions of other ways the feature might be viewed—by native people, perhaps, or by scientists. I might explore the differences between creationists who use some science and canonical science, or "pure science," by pointing out that creationists begin with the assumption there is a creator God. Conversely, canonical scientists assume the world has an objective reality that can be understood via observation, testing, and logical analysis, and that the existence or non-existence of God cannot be established by science. As an interpreter, I am not attempting to change the beliefs of my audience. Rather, I am striving for an ah-ha moment or the statement, "I never thought of that before."

I can have a similar interpretive encounter with an individual who understands the workings of science and believes it to be the only valid means of explaining the natural world. Again, my role is to establish relevance and I might do so by engaging in a conversation about the power and aesthetic nature of science. Once relevance is established, I might then attempt to provoke by stating, "As useful and revealing as science is, it still doesn't answer all the questions. Science can explain how this feature developed the way it has, but it can't tell us why because it can't address the metaphysical. There seems to be a need in humanity for an understandable purpose that, so far anyway, our knowledge has not captured."

Hopefully these examples illustrate the interpreter's role as a facilitator. The Interpretive Development Program does not suggest that any resource professionals abandon their beliefs and perspectives. Instead, resource professionals must take an anthropological position of understanding perspectives and diverse meanings, and stand outside of perspectives and meanings in order to communicate and provide opportunities for audiences to make personal, real, and significant connections to the resource. The resource benefits when

resource professionals are secure enough in their own perspective and beliefs to step outside those beliefs and enable others to care about the resource for their own reasons. The Interpretive Development Program teaches interpreters how to approach audiences in this manner and is beginning to hold them accountable for doing so.

There are many strategies that help implement these ideas. I wish to share a few strategies that I feel are especially important for all resource professionals, regardless of their field, to understand and utilize.

First: We need to know more about our audiences! Accurate and up-to-date knowledge of audience perceptions, the meanings they bring to our resources, the way they make personal connections, and how interpretive experiences effect them over time are tremendously valuable.

If we ask, "What does the forest mean to you?"—surely we will get a variety of answers. If the answer is "A place of solitude, renewal, and creation," we need to create a certain kind of interpretive product. If it is a place "where I can get bitten by a snake," we need to create another. If it is a place of economic opportunity, we need yet a third. If we get all of these answers and more, we need to plan and account for them.

The Interpretive Development Program is encouraging interpreters when they informally encounter audiences to ask questions like, "What did you hope to find here? What do you hope your children will take from this experience? If you had my job, what would you tell people? What did you think about when you saw the bison?" The collection of the answers they receive will not be scientific, but we believe these answers will create a greater understanding of audiences and more effective interpretive interactions than the old approach of "Where are you from?"

Second: Never replace an existing meaning or perspective with a new one. Doing so denies the sovereignty of the audience that holds a meaning as inherent, denies their connection to the resource, and creates unnecessary controversy. It is a mistake that occurs often as new information, methodology, and ideology develop. It can happen in official presentations as well as informal conversation. However it occurs, it undercuts stewardship. New meanings and perspectives should be introduced as an addition to or in relationship to existing meanings and perspectives. Interpreters first establish relevance, then provoke new understanding and appreciation.

Third: Present multiple points of view. Interpreting multiple points of view is a technique that respectfully, fairly, and accurately describes and explores two or more meanings, perspectives, opinions, ideologies, or ways of looking at the same resource or resources. Each meaning or perspective provides significantly different opportunities for the audience to make their own intellectual and emotional connections to the resource. These meanings or perspectives can be from the past or the present, may disagree or conflict, but may simply illustrate difference.

Interpreting multiple points of view is an effective interpretive technique for at least four reasons: a) it provides opportunities for more audiences to find more relevance; b) it provides opportunities for greater provocation; c) it creates an environment of respect that allows for dialogue rather than conflict; d) when controversial resource management decisions are made, it provides a moral high ground for the explanation of the agency's position.

Fourth: Know when a situation is interpretive and when it is not. A situation is not interpretive when the audience has no interest in opportunities for emotional and intellectual connections to the meanings of the resource. This might happen when the situation is

charged with emotion—for example when the re-introduction of a species is feared as an assault on freedom. Or it might also occur when audiences have a strong political or ideological agenda. Of course these people deserve information and communication services, and those services might be delivered by an interpreter. But the goal of those encounters is not primarily to provoke greater care about or care for the resource. Often those audiences already do care a great deal about the resource. The controversy and maneuvering necessary in these circumstances require different and, obviously, very important skills.

Finally, it is important to recognize that resource management and interpretation have a great deal in common. They each apply different knowledge and skills to the preservation of the resource. I am sure the reader agrees that both professions serve the mission more effectively when they work in relationship with each other.

Relationship is a key concept here. Interpreters are dependent upon resource managers' expertise and immediate experience of the resource. However, if either or both view that relationship as the simple handing off of information, if the multiple meanings of the resource are not taken into account, if the focus is on a single message that ignores the meanings ascribed to the resource by others, then critical opportunities for building constituency are missed. Interpreters are not simply the communicators of a resource management perspective. They are also the conduit through which resource management might better understand audiences and the ways in which the public finds meaning in and provides support for the care of the resource.

You can help. Support the professional development of interpreters at your site. Demand professionalism from them. If they are not familiar with the ideas and concepts presented here, direct them to the Interpretive Development Program. Encourage their participation.

Most specifically, Module 340: Advanced Research and Resource Liaison develops and measures interpreters' abilities in subject matter knowledge and research, knowledge of audiences, liaison with resource managers and other experts, and in the interpretive application of all of these. All of this material, content outlines, references and resources, as well as the assessment tool for certification are available at www.nps.gov/idp/interp for anyone who wishes to view or pursue them.

We all know the stakes are high. We face ever greater acceleration of change and an ever more diverse public. Can your resource afford to communicate only one meaning? Can your resource afford to speak to only those who already agree? If your resource does not clearly communicate a variety of meanings and values that engender care for, what will it be like in fifty years? One hundred? Two hundred?

Forever is a very long time.

Interpretation can help.

Be relevant or become a relic.

Will LaPage, Ph.D.

INTERPRETATION AND THE EUREKA MOMENT

"I can remember the very spot in the road, whilst in my carriage, when to my joy the solution occurred to me".

—Charles Darwin

There is a well-documented event that is associated with human creativity—one that is defined as taking place in an instant. What has come to be known as the "Eureka Moment"—a flash of insight that was previously missing, when everything finally comes together—is in fact just one step of a mental process that we all engage in. Whether seemingly instantaneous, or the result of prolonged and intense study, these moments can move mountains. Biographies of famous scientists are filled with such well-known Eureka Moments as Isaac Newton's recognition of a theory of gravity, Albert Einstein's equally revolutionary theory of relativity, Charles Darwin's realization of a theory of evolution, and Edward Jenner's world-changing theory of immunization (Beveridge, 1950). Artists report similar Eureka Moments when seeking to capture the essence of a scene, an experience, or a special moment (LaPage, 2001).

While reports of Eureka Moments suggest that they occur as flashes, they are but one step in a mental process. That process begins with an imprinting, an initial Impression, then proceeds through periods of Reflection and Saturation to Illumination (Eureka), and concludes with Validation (Edwards, 1986). The realization that a process exists makes it clear that Eureka Moments are not the exclusive domain of so-called creative people. The process is available to anyone, and it has potentially powerful applications in the field of environmental and cultural interpretation. We have all used the process many times in our lives, probably without ever recognizing it as the way we gain understanding of complex relationships, discover ourselves, develop a sense of place, fall in love, complete a puzzle, find our life's work, and give our lives meaning. While the process is orderly and sequential, it is often not recognized as such because, unlike most human processes that we are familiar with, it is totally free from time constraints.

Getting to Eureka

"Chance favors those who court her." —Charles Nicolle.

By characterizing the Eureka Moment as chance, intuition, imagination, or serendipity, we have discounted the necessity of the logical sequence that sets the stage. In support of the pure chance argument, there is often a catalyst present at the Eureka Moment—a new light on an old view. But the evidence against chance discovery, and in favor of a prepared mind, is overwhelming. In short, it is possible to increase our odds of having such moments by knowing the process. The inventor and the problem solver know that problems are not solved until they are recognized. And recognition goes beyond simple acknowledgement to include dismantling, analysis, and reconstruction. For the artist, the first impression of a scene, or an idea that needs to be captured, provides that same initial stage of recognition or imprinting.

Impression is the moment that plants the seed, starts the process, and imprints the idea. Impression speaks to us by saying, "There is something more here, something that cries out to be explained, interpreted, developed." It is the beginning of a process that can be turned off with such simple dismissals as, "But I don't have the time," and "I'm not a creative person." Or, it can be an open door to extending that process with a commitment to look deeper and make a claim of ownership that says: "This is mine. I must find the answer! I must complete the picture!"

If the first imprinting is successful, it will lead inevitably to the next steps of reflection or germination, and saturation or immersion, and even obsession. And these steps can last for years before illumination and final validation. For Edward Jenner, the time from his first impression that cowpox exposure safeguarded certain people from contracting the more deadly smallpox, to proof and testing, was 30 years of obsession (Beveridge, 1950). During the reflection or germination period, that first impression gets "worried" by its owner. For the artist, reflection may mean wondering what that scene would look like at first light, or what those ocean waves might sound like on the piano. Reflection places the problem in different settings so that we can see if it's still a problem. Germination embellishes the problem by adding elements: first light, plus fall color, plus a storm, plus a wild creature, or the notes of a piano, the sound of a violin, a full orchestra.

As the problem fails to yield, and the opportunities expand, reflection gives way to saturation and even obsession with finding the solution. The pressure and the focus at this stage can become intense. The saturation stage may involve experimentation, physically manipulating the elements, even rearranging one's life to have more time to devote to the problem. Creative writers often immerse themselves in their subject—actually living the life before trying to write about it. This intensely focused energy primes us for the Eureka Moment, by making us more acutely aware of the reality of finding solutions in unlikely places. Planned serendipity? That same focused energy can serve as an accelerant, speeding up the process to a level where it is no longer recognizable as a process. The composer who hears musical notes in the landscape, the artist who sees colors on a gray day, and the scientist who sees relationships as formulas, are primed for a Eureka Moment.

Enjoying the Moment

"Those who have not known the torment of the unknown cannot know the joy of discovery."
—Claude Bernard

Almost by definition, a Eureka Moment is a new interpretation, often more elegant in its

simplicity and insight than previous interpretations. If the process has been long and arduous, the elegance is probably overshadowed by the sheer joy of a problem solved. And because the moment is both a tiny fragment of the process as well as a powerful impetus to immediately seek validation, we are unlikely to savor and analyze the moment. The emotional stimulus of discovery, combined with the release of frustrations that accompany an unresolved problem, probably create something akin to an adrenaline rush.

Considering the enormous significance of Eureka Moments to the advancement of science and art, it is unfortunate that there appears to be so little documentation of their accompanying mental states, stimuli, and feelings at the time. From what limited observations exist in the field of science, there does seem to be a commonly reported feeling of freedom and relaxation attendant to many Eureka Moments (Beveridge, 1950).

Einstein reportedly had many of his revelations while shaving and had to be careful not to cut himself while simultaneously reacting to the illumination (Edwards, 1986). In fact, many such moments are reported to come from dreams. The very fact that we have dreams tells us that the creative mind never sleeps. If we can assume that alternating periods of intensity and relaxation are conducive to the process, it makes an interesting corroboration of the old maxim about "all work and no play."

Clarity, insight, and understanding are only possible when thought is in abeyance, when the mind is still (J. Krishnamurti).

Just as there is an orderly process leading up to it, The Moment probably contains a lightning-like sequence of its own steps. Some of the most astute minds in history have tried to analyze the components of that moment in hopes of capturing the process and applying it to other problems. What seems to be clear is that the components of the moment are less universal than the components of the process leading up to that moment. The moment itself should probably just be enjoyed for what it is, a beautiful breakthrough in human understanding.

Albert Einstein recorded one of his creative moments as "the happiest moment of his life!"(Edwards, 1986). The photographer's joy in capturing the moment is often evident in the print. It is difficult to look at many of Ansel Adams's Yosemite photographs without also seeing the photographer's joy.

Getting Beyond Eureka

"A healthy ego requires its creations to be both communicated and accepted."

—George F. Kneller.

Just as the process can be aborted by dismissing the first impression, there is a real likelihood that the Eureka Moment can be such an emotional release as to preclude the necessity for validation. Given the saturation that preceded it, the "Why didn't I think of that before?" moment can be an anticlimax. However, validation is more commonly ego-driven, as Kneller suggests. If enlightenment provides a new interpretation for an existing dilemma, it also contains the provocation to seek validation. The professional interpreter wears the somewhat uncomfortable cloak of a facilitator of Eureka Moments. The purpose of interpretation is to build appreciation for our cultural and environmental heritage. That appreciation, in economic terms, is value added to the visit to the museum or to the park. If we have long taken those assets for granted, appreciation becomes a new way of looking at them—an understanding that the heritage assets are collectively "ours," and that what we are is reflected in them. That simple enlightenment may be a mini-Eureka, a re-awakening

for some. For others, it can be a life-changing experience, leading to validation in the form of career changes, volunteerism, advocacy, activism, and artistic expression. The power of interpretation to create change in the ways that we look at things is clearly beyond measure. At a minimum, the interpreter is in a critical position to initiate the process by providing countless first impressions for others.

The principles of interpretation provide a relevant way to look at the Eureka process. Each of Tilden's six principles of relevance, information, the story, provocation, holism, and specialization, can be directly linked to the Eureka process (Tilden, 1957). When relevance is lacking, the probability of any interpretive message sticking—and providing that essential first impression—would be extremely low. By providing information sources, along with that relevance, the interpreter opens the door to the second stage of reflection and germination. By combining the relevance and the information in a captivating and memorable story, the interpreter adds further relevance and a dash of provocation. Most interpretive provocation is in the nature of encouraging further study, reflection, and involvement, precisely the second step of the Eureka process. And some provocation comes in the form of a challenge, to get involved, immersed, in the issues, which is precisely the third step of the Eureka process. And, by presenting the interpretive message in holistic ways that link it to the larger web of life, we set the stage for countless Eureka moments. Once in a great while, the validation of those moments may actually come back to the interpreter in interesting and circuitous ways.

Putting the Principle to Work

"...the paradox is the source of the thinker's passion...the thinker without a paradox is like a lover without a feeling."

—S. Kierkegaard

Although all Eureka Moments are interpretations, it would be unreasonable to expect that more than a very few interpretations are Eureka Moments. Nevertheless, interpretation is a facilitator of Eureka Moments, and the Eureka process is a tool of the interpreter. It is a process that embodies and validates the principles of interpretation. As interpreters look at their many potential audiences, they might want to consider giving greater attention to those that are most likely to be searching for solutions, those who already have the focus and the intensity that is the precursor of a Eureka Moment. Those audiences include the administrators and policy makers of our parks, museums, historic sites, and natural areas, whose main charge from Aldo Leopold is "to improve the quality of public use" (Tilden 1962). If there is a better way of promoting an improved quality of public use than interpretation, what might it be? Other highly receptive audiences are the potential benefactors, volunteers and prospective partners in the endeavor—all of whom are highly focused on finding life-fulfilling and rewarding relationships with their land. People who have been deeply moved by their exposure to nature, its art, and its mysteries, are often lacking only an interpretation, an emotional and an intellectual connection to illuminate the possibilities and find their own destinies.

Yet another Eureka-ready audience for interpreters are the scientists and artists whose needs for truth and beauty can be provoked by new interpretations of the cultural artifacts and natural history of the land. Interpretation can open whole new vistas to the artist and the scientist, perspectives that can satisfy their own interests while potentially yielding important new insights for the interpreter and the administrator.

If we approach the traditional interpretive audiences, visitors and school children, with

the knowledge that we can move them towards Eureka Moments, life-focusing moments, we might find a few more Eureka Moments of our own. The preservation of our culture and our environment is filled with paradoxes that are fertile territory for new interpretations: Why are the things that we value so highly so often taken for granted? Why do we often fail to follow up an act of preservation with an act of appropriation? Why do we persist in seeking to find economic values for those things that are beyond price? And why has the elegant harmony of nature that inspired the designation of our public parklands failed to foster a complimentary administrative ethic? (LaPage, 1995).

Finally, on a humbling note, nature's ability to imprint us, along with its record as an unlimited storehouse of Eureka Moments, would make the interpreter's task unnecessary were it not for the fact that we have so far distanced ourselves from our natural heritage. The same is true with our cultural legacy. But, the key to unlocking countless problems through new interpretations is "just a Eureka Moment away."

There are certain times when, as on the whispers of wind, there comes the clear and quiet realization that there is indeed a presence in the world (Ansel Adams).

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VISITOR STUDIES IN A POLITICAL WORLD

Challenges to Evaluation Research

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Abstract

The evaluation process model consisting of front-end, formative, and summative studies has received fairly wide acceptance among professionals in various kinds of interpretation work. Evaluation can be used throughout the development of exhibits and programs. This acceptance, however, is not as widespread as might be desirable. While some professionals in interpretive settings accept evaluation and incorporate it into routine work, others do not. Misunderstanding about the role of applied social science research is one source of resistance. Misunderstandings can focus around purposes for evaluation, the real world context of applied research, and methods of study. Other barriers include differences in decision-making philosophy, such as the value put on intuitive judgment versus use of rational data-based decisions. A number of political factors can inhibit use of evaluation, including fear of findings that are critical of interpretive work. Fortunately, there are some ways being developed for coping with resistance to evaluation.

I appreciate research, but quite honestly I go with the best-informed judgment I know and hope that things will work out.
—a current museum director

Evaluation studies are just a lot of worthless graduate school fluff. There will be none of that on this project.
—administrator for a major exhibit development project

With all the work that has been done, can't you people in visitor studies just tell us what constitutes good exhibit development practice?
—former director of a major urban museum

Personally, I feel that people who do evaluation research and visitor studies talk to each other in a language only they understand.
—director of a children's museum

The above statements are paraphrases of comments I have heard about visitor studies and evaluation research. They

stand in contrast to the wide acceptance some see in the field. In addition, comments like these point out that visitor studies take place in a social and political climate that often determines their success or failure. This paper will look at visitor studies from a broader political context and identify challenges faced by evaluation research, rather than the world of interpretation or in other situations. Included in this review will be a short overview of the acceptance of evaluation studies of interpretation and visitor studies in general, including the popular evaluation process model that calls for front-end, formative, and summative work. I will also take a look at properties of applied social science research from which evaluation studies have evolved and then note two key issues related to decision-making and the role of evaluation. Finally, I will look at ways of coping with the political aspects of evaluation research and visitor studies. I am indebted to writers in the visitor studies field that I will mention, and to persons knowledgeable about applied social science and evaluation research in particular.

Acceptance of Evaluation for Interpretation

Persons like myself have seen a major development to the field of visitor studies since the early 1970s (Loomis, 1987, 1988, 1991, 1993, 1995, Bitgood & Loomis, 1993). This development has included wide acceptance and use of evaluation research before, during, and after interpretive exhibit and program development (Screven, 1990). Some examples of that work were presented in a special issue of this journal edited by Marcella Wells (JIR, Volume 5, Number 2). Professional associations like the American Association of Museums, Association of Science and Technology Centers and, of course, the National Association for Interpretation now include sessions, and often workshops, on evaluation-related topics. Furthermore, there have been conferences totally devoted to studies about visitors every year since 1988. These conferences now are part of the Visitor Studies Association that was organized in 1992.

Publications related to visitor studies (too numerous to itemize in detail here) have appeared in the last twenty years. Examples of book publications include Diamond's (1999) very helpful primer on doing evaluation in informal learning environments. McLean (1993) combines exhibit development with frequent applications from visitor research to create a strong audience orientation. Though his focus is on constructivist learning theory, Hein (1998) provides a thoughtful overview of many different topics that have been studied in visitor research, Falk and Dierking (1992) give readers an interactive experience theoretical orientation to visitor studies in their book *The Museum Experience.*

Bibliographical work organized by Chandler Screven illustrates the extent of visitor studies publication in the last few decades (Screven, 1999). The fourth edition of this bibliography contains some 1,000 entries selected from over 7,000 sources gleaned from work in 10 countries.

The federal government has also encouraged the use of evaluation in interpretive work. For example, the Division of Elementary, Secondary, and Informal Education (ESIE) at the National Science Foundation has required and supported evaluation of projects for a number of years. More recently, the government has promoted outcome-based evaluation (OBE) for federally funded projects. This latter development, stemming from congressional action, illustrates well that applied studies designed to help decision makers are done in a political climate. I will return to the OBE example later.

Round (2001) presents another kind of evidence of the acceptance of evaluation and

visitor studies. He notes that the modern literature of museum practice contains frequent citations related to visitor studies. Even though his review covers a wide range of museum practice subjects (i.e., curation, administration, education/learning theory, case studies of exhibits) visitor studies accounted for 15 percent of the titles included in his sample. Likewise, most frequently cited authors included writers in evaluation or visitor studies.

The Evaluation Process Model

It was in 1990 that Chandler Screven presented a complete process model that defined specific evaluation tasks that could be done before an exhibit was installed (front-end), during the installation process (formative), and after the exhibit was opened to the public (summative). That seminal paper (Screven, 1990) contained a host of technical assistance tips for gaining information about visitor reactions to exhibits. The same process model could be applied to programs or special needs such as improving orientation for visitors. In the years since then the model has been elaborated on by others (for example, Bitgood & Loomis, 1993, Shettel, 1996a).

While the basic model centered on front-end, formative, and summative stages, Screven also included a stage of remedial evaluation to be done as soon as an exhibit or program was operational and before a final summative evaluation was completed. Some have supported this idea of remedial evaluation (Bitgood & Shettel, 1994) while others have found it an unnecessary complication and feel the idea of fine-tuning a project is part of summative (Miles, 1993). Another tool was added during the summative stage called critical appraisal. It was recognized that by bringing in a panel of qualified experts, and possibly representative visitors, it would be possible to identify problems that could be studied with remedial evaluation. Some problems could even be corrected immediately based on feedback from the critical appraisal.

Whatever the opinion about additional stages, there were three important aspects of the model. First, goals for a project could best be reached by using evaluation during the whole process of development. As such, this model for evaluation runs parallel to that of the design process model with its stages of planning/designing, construction, and occupation. While it is easy to get involved with just how many stages or distinctions there are in the model, the important consideration here is that helpful evaluation studies can be done to serve a wide variety of situations. A second aspect of the model was that it provides both technical assistance and evidence of accountability. Thus, one can use evaluation with an existing exhibit as a starting point for planning a completely new exhibit, or to freshen up an existing one with a limited amount of change. Evaluation can guide a project as it is being developed, or provide a final accountability of how well a project met its goals and objectives—that is, what were the outcomes? A third aspect was that the evaluation process was never meant to supplant expert judgment of curators, interpreters, educators or other specialists involved with a project. The evaluation or visitor studies work should go on in conjunction with other professional work and provide helpful information about visitors at critical time intervals during project development (Bitgood and Loomis, 1993).

As conceived by Screven (1990), the evaluation process should take place from beginning to end. In practice, some stages have met with greater acceptance and use than others. Dierking and Pollock's 1998 book describing how to do front-end evaluations with case examples illustrates the popularity of the front-end evaluation stage. In a similar vein,

Table 1. Evaluation Process Model Stages with Illustrative Objectives, Methods and Issues

Evaluation Stage	Objectives	Typical Methods	Issues
Front-End	Measure expectations for programs or exhibits Measure existing attitudes, knowledge, and attitudes for topics Assess understanding of key concepts Define possible target groups of visitors	Individual Interviews Focus or other group interviews Marketing surveys Interest and knowledge surveys	Size and composition of samples Limited amount of time for testing Cost limits Issues of validity such as response consistency
Formative	Test conceptual understanding Test effectiveness of interactive displays Observe attention to mock-ups	Mock-up testing Individual interviews Focus or other forms of group interviews Observation	Size and composition of samples Demands for repeated (iterative) testing Validity issues such as response consistencey
Early Summative	Identify major problems and errors Use remedial testing to correct problems	Critical appraisal panels Modified exhibit experiments Individual interviews Focus or panel groups.	Time factors such as pressures to move to new projects Fear of negative or non-significant results Need for repeated (iterative) testing Limitations of small samples
Later Summative	Measure final outcomes of a project Document audience served Identify factors useful for new exhibits	Larger samples of observations and surveys. Focus or panel groups.	Political problems with exposing failures Time factors such as pressures to move to new projects Cost of collecting more complete samples

Taylor (1991) describes formative evaluation and provides numerous examples.

Table 1 contains a summary of objectives, typical methods, and issues related to the evaluation process model. Specific entries are meant to be illustrative of what can be done in the different stages of work. Out of respect for Miles's (1993) concern with too much complexity in the process model, I have divided summative into early and late periods. Early includes both critical appraisal and remedial efforts. Late summative includes efforts more typical of what is meant by summative evaluation.

Why Applied Research?

Efforts to evaluate interpretation and do visitor studies have a legacy based on American interest in applied research. Evaluation research has grown out of this emphasis on research applications. Perhaps it is a heritage of wanting practical outcomes that has fostered an acceptance of research designed to solve problems and help decision makers across a wide range of settings and tasks. Bickman and Rog (1998) present a good working list of the characteristics of applied research in their edited *Handbook of Applied Social Research Methods*. Some of the misunderstandings about visitor studies and evaluation of interpretation grow out of confusion about what applied research is and what it is not. These misunderstandings about applied research can also create political problems as clients and evaluators may have very different expectations about a specific project.

Bickman and Rog note that the applied research environment is often chaotic and complex. Furthermore, this applied environment is often void of experimental controls expected in basic research, and is made even more complex by political pressures that may be at work. In addition, while basic researchers may be able to set a timetable for their work, applied researchers often work with demanding time constraints. Evaluators frequently are expected to use scientific methodology to generate information for immediate application without the luxury of greater time for work enjoyed by basic researchers. Those who use this information need to understand the differences between basic and applied research. Often, however, such persons have only had college courses in basic research and proceed to judge evaluation studies by those standards. Distinctions between applied and basic research center around differences in purpose, nature of context, and methods (Bickman & Rog, 1998).

Purpose

People who do evaluation research and those who request it may have very different purposes in mind. Unlike basic research where the researcher sets the agenda, often it is the client or organization that initiates a project. The client or organization may not have project goals clearly in mind. For example, there may be a request to measure visitor "experience," but very little understanding of what kind of experience is involved. An exhibit designer may have very abstract ideas about the influence of design on visitors that a researcher finds difficult to measure in a reliable manner. Evaluators are more interested in knowledge use than knowledge production. How can knowledge, either already gathered or to be gathered in a project, help interpretation? A visitor studies project is focused from the beginning on delivering some knowledge that can be used immediately.

Context

To complicate matters further, Bickman and Rog point out that evaluation questions are often involved with complex underlying situations. Trying to measure the effectiveness of a interpretive program in a park, for example, brings to play all kinds of variables ranging from who the visitors are, to conditions in the park itself, to the specific features of the actual program. Basic researchers, or even educational researchers doing classroom studies, do not have to deal with such contextual complexity. As mentioned earlier, the context is also one where clients and organizations may set the research agenda. In addition, applied research often entails use of a research team. For interpretation research, a team is apt to consist of an evaluator, curator or other subject matter specialist, interpreter and/or educator, and an exhibit or program developer.

Methods

Visitor studies have come to use a variety of methods. That is a typical Bickman and Rog note of applied research. They make three observations about methods for doing evaluation research. First, applied researchers are much more concerned about external validity than basic researchers. All are concerned about internal validity (the ability of a study to establish a causal relationship between variables). But visitor studies also involve coming up with generalizations about findings that could be applied to other exhibits or programs (external validity). Unfortunately, visitor studies are often focused on specific situations that make generalization more difficult. Second, applied researchers are more involved with the construct of effect than the construct of cause. A lack of control limits explaining what may be causing a given visitor reaction, but the effect of different conditions of interpretation can be demonstrated. This demonstration is especially possible if evaluators rely on more than one source of information. For example, satisfaction with a new exhibit could be measured by both interviews and observations of how long visitors stay in the exhibit and what they attend to. Third, applied research often deals with multiple levels of analysis such as looking at an exhibit both from concepts of design and ideas about visitor learning. This need for more than one level of analysis is what makes a source like McLean (1993) so valuable. She combines exhibit design concepts with findings from visitor studies.

There is another important concept mentioned by these authors, namely the iterative process. For many evaluations of interpretive materials, especially when doing formative studies, the effort must be repeated as changes are made in an incremental manner to an exhibit or program. There is a process of successive approximations with testing done on each change. This iterative process is in contrast to what many think of as a research study. It also calls for patience and resources from administrators and those developing interpretation. Development schedules are difficult enough to keep without the evaluator slowing everything down to repeat testing. The iterative process, however, is at the heart of good formative evaluation. This applied research need has been well stated by Screven (1976) in a now classic paper about using evaluation to assist exhibit development. An effective exhibit (or interpretive program) is best achieved through successive testing during formative evaluation.

Evaluation Research and Decision Making

The acceptance of visitor studies and evaluation as examples of applied research has been extensive and encouraging, in spite of some of the issues just mentioned. However, for this work to be effective it must be incorporated into the routine professional work of institutions that offer interpretive programs and exhibits to the public. That incorporation is still incomplete. Shettel (1996b) observed that when he started to do visitor studies well over thirty years ago he would not have thought of linking politics and evaluation together. Over the years he has come to realize that visitor research of any kind cannot be separated from the social and political influences created by people and institutions.

Two key issues help define the political reality that Shettel has come to respect. One issue is the use of *intuitive* judgment in making decisions about planning interpretation. Intuition is substituted for evaluation. The second issue underscores the importance of institutional politics in determining if evaluation research is to be done and how such studies will be or not be used. Both of these issues can run counter to a rational model of doing applied research to inform and guide decisions.

Intuitive versus Rational Decision Making

Carol Weiss (2000) underscores a major issue with evaluation research in general and visitor studies in specific. What is the real decision-making climate in organizations that drives decision-making? Is evaluation, or research in general, antithetic to the typical decision-making process? Weiss, who is one of the leading experts in evaluation research, notes that the role of evaluation can be interpreted differently. Some see it as never above the conflict of competing decisions, but used by different advocates for their particular arguments. Rational objectivity is often taken too much for granted. The scientific model is often not really the basis for most decision making. Certainly in the world of interpretation one often sees this distinction between relying on intuitive or professional judgment rather than with data-based evaluation. Data based information is often ambiguous and subject to competing interpretations. It is this competition of views about data that often drives the politics of decision making whether in a legislative body or a staff meeting in a museum.[1]

Political Contexts

The Political context of evaluation can be illustrated by the recent emphasis of the federal government on outcome-based evaluation (OBE). While well-intended, this move by government has produced no small amount of confusion about evaluation with museums and other cultural institutions. This matter is important, because of the dependency of much interpretation work on federal government financial support. Taylor (2002) observes that the move to OBE has grown out of the 1993 Government Performance and Results Act passed by Congress and the adoption of this type of evaluation by the United Way (1996). The Institute for Museums and Library Services (ILMS) has encouraged outcome-based evaluation for museums and libraries through the publication *Perspectives on Outcome-Based Evaluation.*[2]

The political confusion is between the established evaluation process model that has been used by many, and understanding exactly what OBE requires in the way of evaluation. How can front-end, formative, and summative phases of evaluation be coordinated with the management objectives of OBE? Some concerns expressed by visitor studies professionals include the introduction of new and confusing terminology, a possible shift of evaluation focus from the process model with front-end and formative work to a superficial use of summative-only evaluation, an overuse of performance measures, and the possibility of government-required work without additional resources made available to do the work (Loomis & Falk, 2002).

Sommer (2002) offers an encouraging example using the evaluation program at a natural heritage center type institution. His example shows how the management objectives of OBE can be met through the process of effective implementation of front-end, formative, and summative evaluation. The positive potential of OBE politically is that it will encourage more administrators and institutions to complete useful evaluation work as described by Sommer.

Friedman (1996), who is a director of a major science museum, identifies four major concerns that can complicate the political acceptance of evaluation outcomes. First, he notes that fear of "no significant difference" often drives resistance to doing evaluation. Cost and effort are seen as wasted if no difference is found. Here is another example of where basic and applied research can be different. Second, fear of negative results can be a political barrier to completing studies. The political climate may simply not be supportive of documentation that an exhibit or program was not received well, communicated misunderstanding, or suffered from other problems. Third, Friedman observes that there is a general distrust of marketing research and formal educational research. While visitor studies can offer

help distinct from these two types of research, people working in interpretive settings may not understand this distinction. This concern is why it is important to understand the evaluation process model described earlier. Finally, Friedman suggests that there are often no apparent consequences for avoiding evaluation of an exhibit or program. Testing to assure good communication is a subtle undertaking compared to problems like opening behind schedule, exceeding the budget, or a shabby-looking design. These latter items draw attention, and more than likely criticism.

Coping with Intuitive and Political Threats to Evaluation

Writers have suggested a number of ways to cope with threats to using evaluation. These threats include biases against rational decision-making based on research and political forces that work against effective use of studies. For example, Weiss (2000) identifies four general ideas that apply to any kind of evaluation work.

Recognize the political climate.

It is very important to understand how decisions are made if there is any hope of implementing results of evaluation and visitor studies. It is this recognition that makes the observations of Friedman mentioned earlier so important.

Some museums, for example, have found that by using both in-house and out-of-house evaluators they can overcome some political obstacles. The in-house evaluator can develop an understanding of the institution and leadership styles. This person can also do the quick turnaround formative studies that help staff with exhibit and program development. The external evaluator brings objectivity to the work and is not directly under the influence of institutional politics. They can provide external authority to summative or outcome-based evaluations in particular.

Improve both validity and interpretability of evaluation studies.

Weiss advises that any perceived weakness in the method of an evaluation study can lead to discounting the results. The popularity of front-end and formative evaluation has led to short-term and often small-sample studies. These studies are rather relaxed, methodologically, compared to the usual standards of research. While they do produce useful information they also raise validity questions. Bitgood (1995) provides some cautions about the validity of front-end evaluation studies. He raises the question of predictive validity when assessing interest and warns that answers to front-end interviews may not always correlate with how much attention visitors give to topics in an actual exhibit. In another example, he cautions about assuming too much internal consistency for answers to front-end interviews. In this example it was discovered that students who identified themselves as creationists were giving responses later in the interview more consistent with an evolutionary position. He also noted that it could not be assumed that construct validity was present without establishing that visitors were using terms like 'evolution' and 'creationism' in a consistent manner.

Using more experimental designs, as championed by the late John Koran, can also enhance validity of visitor studies and evaluation. Many interpretive situations can be evaluated using alternatives tested with comparisons defined by an experimental design (Koran & Ellis, 1991). For example, some interpretive materials could be tested with a multiple group posttest-only design with a comparison of different interpretive treatments, compared to a no interpretation control group. These authors note the problems of gaining both internal and external validity mentioned earlier in field studies of interpretation.

Furthermore, they advocate quantitative or more naturalistic measures being combined with experimental designs to test for validity of findings.

Recently, the advice of Koran and Ellis was put to use in a national park survey that combined a standardized exit visitor survey with subsamples that received different interpretive media experiences prior to doing the survey (Eisenberger & Loomis, 2002). Both quantitative and qualitative data were collected in this study. The study used standardized measurement scales to define personality variables that were related to preferences for different media formats. At the same time visitors made open-ended responses about the media that generated considerable evaluative information. Content from the open-ended questions also helped to establish relationships between personality and media formats.

Weiss also calls for more efforts at improving the interpretation of research outcomes to clients and those who could use the outcomes of evaluation studies. Here, also, is the need for summary materials that speak to the technical assistance need of busy professionals and administrators. What do we know about visitors and their experiences? How does that knowledge relate to typical interpretive situations such as marketing to audiences, planning and performing educational programs, and designing exhibits?

Avoid evaluator imperialism

Evaluation researchers need to recognize the service aspect of their work and not assume an overly dominant role. Perhaps one of the stronger aspects of the visitor studies movement of the last twenty years is the availability of technical assistance provided by both academics, professionals in interpretation, and evaluation consultants. Workshops and conferences done through the National Association for Interpretation, American Association of Museums, Visitor Studies Association, and other organizations have provided training and increased awareness of visitor studies. On-site workshops can also be effective. For example, I was aware that a series of workshops conducted by Chandler Screven changed the thinking of staff at the Denver Museum of Nature and Science. The workshops were "hands-on" experiences in planning and using front-end and formative evaluation. Today that institution has a full-time evaluator and uses evaluation as a matter of course.

Study successful examples of implementation.

Weiss also emphasizes the importance of publicizing examples of implementation. There is a temptation to focus on results and it is never known which, if any, of these results were acted upon. This is certainly an area of visitor studies that needs more attention. Recently, Carl Nold (2002) observed presentations at a Visitor Studies Conference and then related his observations to his career as a director of historic settings. His noting what kinds of studies and outcomes were useful to a director was very consistent with the need to relate research to the needs of those in decision-making roles. For instance, he commented that earlier experiences with seeing the outcome of evaluation work about history artifacts and interpretation convinced him to implement a team model for exhibition development that included audience advocate and visitor research.

While Weiss is commenting about evaluation research in general, writers within the visitor studies field also have suggestions for improving the acceptance and effectiveness of evaluation research. Bitgood (1996) reviewed a number of presentations about acceptance of evaluation and concluded that there were several recurrent themes. These themes included lack of understanding about evaluation, a failure to give evaluation sufficient priority, concern over possible negative consequences of evaluation, the nature of the institution, and

lack of incentives for conducting evaluation studies. He also identified nine indicators of acceptance of evaluation research that ranged from doing occasional evaluations to hiring an in-house evaluator to requiring evaluation for most projects. In addition, Bitgood noted that several things could be done to increase acceptance of visitor studies. Very important was educating the staff about evaluation through making reports and articles available, discussing evaluation in staff meetings, and encouraging attendance at workshops. Involving staff as stakeholders in evaluation studies and minimizing threats of evaluation by encouraging front-end and formative studies were also mentioned.

In a similar vein, Wagner (1996), writing from the perspective of a zoo administrator, outlines a ten-step approach to institutionalizing evaluation. Among the things she advocates are creating discontent with the status quo, defining a problem that needs to be solved with the help of evaluation (step three), and just doing it (step six)! Finally, Socolofsky (1996) summarizes three benefits gained by the Phoenix Desert Botanical Garden. Benefits included greater support by staff and volunteers of new ideas growing out of evaluation findings, a more visitor-centered orientation to the institution's work, and greater funding for exhibit projects because of formative evaluation of mock-ups.

Summary

While the use of evaluation and visitor studies has been accepted by many in interpretive work, there are still those who are skeptical. There remains a continual challenge of bridging the gap from research of any kind to practice. Bridging the gap assumes a rational decision maker, be they curator, exhibit developer, interpreter, educator, visitor services coordinator, or involved with audiences in some other manner. Evaluation researchers and those other professionals who support visitor studies need to recognize the political barriers to acceptance and use of evaluation. Some of those barriers come from misunderstandings about the distinctions between basic and applied research. Others grow out of real philosophical differences over the role of intuition and rational data-gathering in the tradition of scientific inquiry. Fortunately, there is a growing awareness of ways to cope with barriers to using evaluation research. Some of the specific coping strategies include avoiding dominance by evaluators and making staff stakeholders in the work, presenting successful examples of implementation of visitor studies, recognizing the political climate of an institution, and working to improve the validity and interpretation of evaluation studies.

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ENDNOTES

[1] There is not space in this paper to present the complex discussion Weiss provides about the philosophical basis of decision-making and evaluation research. She contrasts the popular rational and scientific method approach of Campbell (1999) with the negotiating polity view of Lindblom (Lindblom & Woodhouse, 1993) and March's views about the limits of human and organizational rationality (March, 1994). Campbell's writings on methods and applications of social science to management of social programs have been a strong influence on those advocating evaluation research. Significantly, Weiss's discussion appears in a two-volume work dedicated to the legacy of Donald Campbell.

[2] This resource is available at the ILMS website (www.IMLS.gov) home page, click on publications. See also the ILMS website section on Outcome-Based Evaluation.

AN EVALUATION OF THE "AUTHORITY OF THE RESOURCE" INTERPRETIVE TECHNIQUE BY RANGERS IN EIGHT WILDERNESS/ BACKCOUNTRY AREAS

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Abstract

The Authority of the Resource Technique (ART) is a multi-pronged interpretive approach for dealing with undesirable visitor behavior in protected areas. Although ART has been used and supported anecdotally by agency personnel since 1991, this study provides the first systematic field evaluation of its use. During the 1998 field season, 25 USFS and NPS wilderness/backcountry rangers from seven areas were given training in the use of ART and asked to make structured journal entries each time they chose to use ART while addressing undesirable visitor behaviors. An elaboration of the theoretical grounding for ART was used to help frame the evaluation. Among the results were findings that rangers using only ART with no law enforcement recorded high levels of verbalized intention to comply, observed compliance, and rated ART contacts as very or moderately effective for more than 75% of those contacts. Contacts rated as "very effective" were likely to include more of the multiple intervention strategies made available by the ART approach. Recommendations are given that could improve the effectiveness of ART and its ability to influence visitor beliefs, attitudes, intentions, and behaviors.

Keywords

Interpretation, persuasion, education, law enforcement, undesirable or depreciative behavior, visitor management, behavior-change interventions, wilderness, protected areas, resource impacts, visitor experience.

Introduction

It is generally accepted among U.S. protected area managers that visitor management in wilderness and backcountry areas

should, when possible, be indirect and unobtrusive (Hendee et al., 1990). This favors the use, whenever possible, of situation and site-specific information, interpretation and education, and selective contacts by rangers (Cole, 1996; Doucette & Cole, 1983; Washburn & Cole, 1983; Martin & Taylor, 1983). This approach embodies the "minimum tool" principle as it is applied to the human resource. It is seen as being in keeping with wilderness values and the wilderness or backcountry[1] experience that with a minimum amount of agency presence, regulation, and good pre-trip information, users should choose an appropriate and intrinsically motivated course of action. Given that most wilderness visitors are repeat visitors who are both well educated and well intentioned (Watson et al., 1996 and 1995, see also website sources for "wilderness users" at Besancon, 2000), and tend to seek out information (Graefe et al., 2001), it seems to follow that an educational approach can also be extended even to most routine law enforcement[2] situations where visitors have not chosen an appropriate course of action. After a review of the literature on managing depreciative behavior in outdoor settings, Manning (1999) gives guidelines for using information and education as part of the solution. Among the effective strategies given are: personal contact by rangers, role modeling by park rangers and volunteers, and providing information on the impacts, costs and consequences of problem behaviors. Although Manning notes that personal contact is highly supported by mangers, it must also be noted that a number of studies have looked at the use of personal contacts for reducing specific undesirable or depreciative behavior or vandalism (graffiti, littering, etc.) and produced mixed results (Roggenbuck, 1992). These studies, however, have not typically looked at the quality of personal contacts or the number of interventions utilized during a contact or probed the perceptions of rangers. Widner and Roggenbuck (2000) are among an increasing number of researchers who point out that due to the complexity of non-compliant behaviors, multi-pronged approaches employing a number of theoretically grounded behavior-influencing strategies are likely to be more successful at dealing with undesirable behavior.

Undesirable visitor[3] behavior in wildland settings typically results in some negative impact to resources like soil, vegetation, water quality, and wildlife, or negatively impacts the experience of other users (Hammit & Cole, 1998). For our purposes here, the more typical types of undesirable behavior can be categorized as: a) uninformed, b) unintentional, c) unskilled, or d) careless[4] (Hendee et al., 1990; Gramann & Vander Stoep, 1987). Additionally, Gramann and Vander Stoep (1987) have described three less typical or special categories of depreciative behavior: e) "responsibility-denial," f) "releasor-cue," and g) "status-conforming" behaviors where either moral obligation does not transfer to a particular circumstance, there is evidence of unmitigated prior impacts, there is inconsistent enforcement of regulations, or the desire to conform to (undesirable) group behavior is a priority—any of which can prompt visitors to compromise what they know to be appropriate behav-

[1] Henceforth referred to in most cases as "wildland" and meant to include designated wilderness, backcountry and other similar settings

[2] "Law enforcement contact is used here for contacts involving any undesirable behavior, recognizing that some will not be covered by laws or regulations. Leaving a flagging trail of bright plastic ribbon to mark a route, for example, is undesirable but may not be covered by regulations.

[3] We use the term "visitor" to also denote that of "user" since we wish to include others like researchers, grazing permitees, outfitters, local people and others who may not see themselves as typical recreational visitors.

[4] Hendee et al. (1990), also include an "unavoidable" behavior category (loss of vegetation at designated campsites etc.) which the authors feel is generally only dealt with by rangers if it performed at a level which is not acceptable and may actually be seen as "unskilled"or "uniformed" or "careless" behavior that can be improved on.

iors ("why should I do the right thing, nobody else seems to").

Most law enforcement or undesirable behavior contacts in wildland areas involve one or more of the non-criminal categories above. Ranger contacts that deal with these behaviors are typically personalized, verbally interactive, and take place in a naturalistic field setting. Such contacts are seen by the authors and others (Roggenbuck, 1992; Ham, 1992; Roggenbuck & Manfredo, 1990; Hendee et al., 1990) as potentially persuasive or "teachable moments"—especially for behaviors in categories a, b, and c above. That is, they are opportunities to expose the intent of a regulation and help visitors understand how their behavior is affecting a given resource (Dustin and McAvoy, 1985), provide them with new information and skills, enable them to transfer existing knowledge and good intentions to new situations, and modify beliefs, attitudes, and future behavioral intentions. As such, these contact opportunities are deserving of an approach that provides careful arguments, pays attention to information processing, and at the same time attends to peripheral factors like distraction and source credibility. This will be more effective if it builds on the existing knowledge and beliefs and interests of the visitors contacted. One multi-pronged and interpretive approach for dealing with undesirable behavior in wildland settings that departs from more traditional law enforcement techniques has been described by Wallace (1990) as the Authority of the Resource Technique (ART).

A Brief Review of the Authority of the Resource Technique

In 1987, while participating in several ranger[5] training activities, the lead author began keeping notes regarding the way contacts with visitors exhibiting undesirable behaviors were taught or made in the field. He observed that rangers,[6] especially commissioned rangers, frequently chose to use a traditional law enforcement approach to address most of the undesirable behaviors discussed above. They relied largely on the "authority of the agency" as manifested in the badge, uniform, body language, regulations, verbal or written warnings, and occasional citations. It seemed that they often missed natural opportunities to inform and educate or that the information given was less effective than it might have been. Other studies have supported these observations and suggested alternative approaches (Manning et al., 1996; Vander Stoep; 1995, Fish & Bury, 1981). Wallace also noted that a number of rangers combined law enforcement with educational or interpretive approaches naturally and effectively. This motivated him to develop a more comprehensive rendering of this approach which evolved to become the "Authority of the Resource Technique" (Wallace, 1990; Wallace, 1991). In part, ART can be seen as a technique used for the ongoing, on-site-specific, interactive, and personalized delivery of the type of information developed by Hampton and Cole (1995) and the National Outdoor Leadership School (1993) to educate users (off-site) about ethical behavior in wildland settings.

ART helps visitors to understand the "natural authority"[7] and requirements inherent in

[5] "Rangers" is a general term meant to include park and forest rangers, wilderness or forest guards, wildlife officers, or other protected area personnel or volunteers with similar responsibilities.

[6] By "commissioned" rangers, we mean those that have had law enforcement training that enables them to issue citations or make arrests.

[7] According to Webster, "authority" means "the power to influence or command thought, opinion or behavior." Wild nature can be said to have its own authority. Nature has her own rules, operates in certain ways, and has certain laws; there are consequences when we violate that authority. Wildlands are among the few places on earth where we have agreed, for the most part, to allow nature to operate on her own terms. Desirable behavior is more likely to occur if people understand how their actions affect the way nature operates.

objects and processes in nature as well as within the experiences sought by most people visiting wildland areas. It assumes that the reasons behind most regulations or appropriate behaviors can be revealed in ways that are interesting, enlightening, and persuasive. Although the ART concept is intuitive for some, the need to describe it systematically so that it could then be incorporated into training for field personnel (Olson et al. 1984) soon became apparent. In its current form, ART can be described as having four basic steps, and within those, a number of suggested practices and nuances that can be used during a visitor contact (Table 1). After a) an announced approach, introduction, and the initiation of ice-breaking conversation, the ranger b) gives the visitor an objective (non-judgmental) description of the undesirable behavior that was observed. Then, c) the ranger shifts the focus of the contact to the resource (physically and mentally) and uses the interpreter's art to reveal the implications of the behavior for the resource or the visitor experience. Ideally, soon after the contact is initiated, the shift of attention away from the ranger to the resource creates a type of interaction where both parties are "shoulder to shoulder" and engaged (physically and mentally) with some third phenomena in nature. If done well, the tension of a "face to face" encounter with agency authority is partially alleviated without giving up agency presence. In the final step, the ranger d) describes, and if the opportunity presents itself, models or demonstrates all or part of the desired behavior.

In the following example based on an actual 2001 contact, a ranger approaches a fisherman after passing by a restless saddle horse which has been tied to a tree for some time. The horse had gotten a foot over his halter rope and in reaction to this and having been left alone, had pawed the ground around the tree down to mineral soil.

RANGER: Good morning. I'm Denise Johnson, a wilderness ranger for the Elk Mountain District.

VISITOR: Morning. Ed Taylor.

RANGER: (After ice-breakers, in this case talk about fishing conditions and approaching rain clouds) I noticed a bay gelding in the trees about 200 yards north of here that was tangled up in his halter rope.

VISITOR: Oh-oh, that must be my horse Spud.

RANGER: (Turning towards the place the horse is tied) I freed him up and re-tied him, but maybe we should walk over there and check on him while we are talking.

VISITOR: Ok. We are just getting used to trail riding and being up here together. (They walk to the site, look the horse over to see if he has injured himself. Then the ranger reaches over and puts a hand on the tree examining the spot where the rope was first tied)

RANGER: This is a common problem here where we have a lot of people using horses or packstock. If horses are tied to a tree for very long without the rider or packer around they start to fight the rope, it cuts into the bark and eventually into the cambium layer here that transports water and nutrients. Most restless or tangled horses will paw the ground like this (reaches down to pick a handful of mineral soil), which disturbs the vegetation and exposes tree roots (touches top of a root). All of these things add up and can make a tree more vulnerable to disease or wind throw.

VISITOR: Well, I am sorry about this, the fishing was good and I was gone longer than I intended to be.

RANGER: I understand. I would like to mention some things that other stock users and the Forest Service are doing to help their horses and mules get used to the routines up here and minimize the impacts they can cause. We have developed a handout here that

summarizes part of it (reaches into daypack).

VISITOR: Sure, a person can always pick up some pointers.

RANGER: When I patrol on horseback, I tie off to a small highline with "tree saver straps" that won't cut the bark (opening the brochure). This diagram shows how to rig one up (diagram is discussed). If you do have to tie off to a tree, it is good to look for a resistant spot and tie high and short like I have done here with a quick release knot (moves to the knot and snugs it). Now he can't step over the rope or walk around the tree and you can loose him off quickly if there is a problem.

VISITOR: What would be a resistant place to tie up?

RANGER: In a spot like this, you could move a little further back into the trees (turning or walking towards an ideal spot) where there is mostly pine duff and not much vegetation to impact. Even there (here) the highline is still the best way to tie if you are going to be more than a few minutes. (Moving back to the horse) I also throw in some equine insect repellent for the nose and deer flies and a pair of hobbles. The repellent helps a horse to stand quiet (puts a hand on the horse's shoulder) and the hobbles will keep them from pawing the ground until they are accustomed to backcountry routines. If a horse is used to a picket stake and rope, the grasses at the dry edge of the meadow are quite resistant. Picketed stock are more content because they can graze some.

VISITOR: Well, I will have to get my two used to the hobbles and picket rope before we come up here again.

RANGER: You're onto something there. Conditioning them to these routines at home is key. (Stepping back from the horse) Well, I can tell you care about your horses and are on the right track to solving this problem. (Ranger moves some dirt back around the roots.)

VISITOR: I will cover those roots back before I go.

RANGER: That would be good. Now I better let you get those fish cleaned before it starts to rain. It was nice talking to you.

The ART steps themselves are straightforward, but the technique involves many subtleties that are grounded in theory. The practices available for use during a contact and described in Table 1 can be viewed as multiple interventions. With practice and field experience, ART can be used to respond to many different situations and user types. It requires that rangers continue to learn about and are able to articulate (sometimes translating technical terms as vernacular) an area's unique resource characteristics, natural processes, user characteristics, and institutionalized values. They must also be able to articulate how each of these can be negatively impacted. Careful listening to visitors provides cues about how to present information that is relevant to the visitors and builds on their existing knowledge and beliefs. An internalized respect for different user types and the ability to combine empathy with a non-threatening but confident bearing are among the subtle things that make ART work well. While some of these things come naturally for many agency personnel, others will require practice or conscious reconciliation with other law enforcement training. During ART training sessions, participants are asked to list the most frequently encountered types of undesirable behavior in their areas and then to develop, critique, and role-play responses for each of them. Participants may be assigned to play the roles of either visitors or agency representatives. These hypothetical contacts are then critiqued by the role players themselves and by peers and instructors both for their strengths and areas needing improvement. Improving message content, eliminating value judgements, becoming more aware of body

Table 1. A Theoretical Grounding for the Authority of the Resource Technique (ART)

Basic ART Steps and Suggested practices	Supporting References
STEP 1. Approach visitors in a non-threatening way that does not startle them. Introduce your self and initiate ice-breaking conversation - *"these kids look like they are having a good time".*	Classical Persuasion Theory, suggests that the alleviation of fear or emotional tension enhances persuasion (Hovland group, 1953; Laswell,1948).
STEP 2. Give an objective description of the undesirable behavior that was observed. Be non-judgmental. *"I noticed that your boys have built a small campfire out of driftwood""* – rather than, *"don't you folks know that it is illegal to gather firewood in the canyon."?*	Classical Persuasion Theory, suggests that a source that appears to be objective and unbiased source reduces suspicion and fear factors and is viewed more favorably (Hovland et al. 1953)
STEP 3. Shift the focus to the resource. A "shoulder to shoulder" interest in some third thing rather breaks the tension of a face to face encounter. with visitors. Reveal the implications of the undesirable behavior for the resource or the visitor experience. Use the interpreter's art. *"With the dams upstream, we no longer see a swollen river carrying ample driftwood to these sandbars in the Spring. The debris that does manage to arrive, like this log here, provides important habitat for a variety of creatures. Here for example, we have...".* Listen carefully to visitors. Use the cues they give you about their motivations, beliefs and current level of understanding about the issues to structure your description of the implications and make them relevant. Respond carefully to questions they may have as they consider your message. Questions are an indicator that the visitor is engaging the issue. This step is the heart of ART where you focus carefully on the natural reasons behind the regulations, create a strong case for protecting the resource or the quality of the visitor experience while helping visitors engage the issue in ways that are relevant or meaningful to them.	Martin Buber (1970) discussed the psychology of reciprocal interaction created by an interesting phenomenon. The approach is supported by Post-Classical theories like the Elaboration Likelihood Model (ELM), (Petty et al., 1992; Petty and Cacioppo, 1986; 1984); Theory of Reasoned Action, (Fishbein & Ajzen, 1980), and The Theory of Planned Behavior, (Ajzen, 1985,1988). These researchers consider argument scrutiny and active deliberation ("elaboration") to be the "central route" to persuasion. Active cognition and testing of beliefs yields changes in attitude and behavioral intention that are more accessible, persistent, resistant & predictive of behavior. Attitudes should be primed and linked to a given situation (Fishbein & Manfredo, 1992). ELM stresses the importance of argument relevance, quality and integration with the recipient's existing cognitive structure and beliefs. It also recognizes that the central route requires the recipients to be motivated and able to process the information. They also point out that this is more likely in a naturalistic setting (Ajzen,1992).
STEP 4. Describe the desired behavior clearly and if needed, explain how to do it. *"and so we ask that anyone wishing to have an open fire on the river to carry a fire pan like this one I carry in my boat, and some processed fuel like charcoal briquettes along. These fuels burn completely and the ashes from such fuels can be easily carried out with other solid waste".* Model or demonstrate all or part of the desired behavior if the situation lends itself to that. After describing the desired behavior, if the visitor appears to be giving only half-hearted consideration to your message, it may be best to refer to the regulation as well. *"That way, people can still enjoy a fire and be in compliance with the regulation that prohibits the collection or burning of wood in Red Canyon ".*	Persuasive messages must be linked to specific target behaviors (Vande Kamp et al., 1994; Eagly & Chaiken, 1993). Then, ELM, the Theory of Reasoned Action and the Theory of Planned Behavior all posit that even if people agree that x is a desirable behavior, they must see themselves as able to do x or control an outcome before they act (Petty & Cacioppo, 1984; Fishbein & Ajzen, 1980; Ajzen, 1985, 1986). Likewise, Social-Cognition Theory suggests that newly acquired attitudes and behavioral intentions may require new skills and self-perceptions (confidence etc.) to be activated (Bandura, 1982); Expectancy Valence Theory says that people will consider the probability desirability of a behavior's outcomes (Lawler, 1973); and Classical Persuasion Theory, points out the importance of stating conclusions for complex arguments (Hovland group, 1953). Moral Reasoning Theory, Kholberg, (1980) and others suggest that young people and some adults may be using pre-conventional stages of moral reasoning and need to be reminded of rules and consequences even as values are tested to promote moral development.
Suggested Practice a: Try to eliminate or reduce the distractions often caused by weather, noise, discomfort, the activities of other people etc.	Elaboration Likelihood Model, suggests that minimizing distraction enhances the ability to process information (Petty and Cacioppo, 1986)

language, and incorporating a "hands-on" approach while interpreting the resource are frequently singled out as areas needing improvement. Training also includes how to make the shift back to traditional law enforcement practices if the person is not receptive and when not to use ART. It should be noted that ART is not appropriate for use with potentially dangerous or violent situations, or to address willfully illegal behaviors such as poaching, drug cultivation, arson or motorized entry into non-motorized areas.

Although the ART is currently used by many state, federal, and international protected area personnel, is included in a variety of published agency training materials, and has been featured several times in the popular press, its use in the field has not yet been systematically evaluated. There are reasons for believing that, for most undesirable behaviors, ART can

Suggested Practice b: Look for opportunities to refer to the values and norms shared by most wildland users when an undesirable behavior is impacting the experience of others. *"Many visitors tell us they come here to escape the sounds of the city and to listen to the sounds of nature"*, might be used with boy scouts whose radio is audible from across a lake.	Group membership (and group norms) are very important for some recipients, (Hovland group, 1953). Those with low levels of involvement in or active deliberation about an issue message may still search for a "correct" position as it is held by others, (Chaiken, 1980). Theory of Reasoned Action suggests that behavioral intentions are influenced by a subjective norm which is the perceived social pressure to perform certain behaviors (Fishbein & Ajzen, 1980).
Suggested Practice c: It often helps to engage the visitor or reveal some aspect of the resource if you approach, touch or handle things in nature. You might lift up a rock to look for aquatic insects while talking to someone who was washing dishes in a small stream; or pull an invasive weed while talking about changes in vegetative composition that occur at disturbed sites.	Touching objects that are being studied enhances information processing for some people and forms a bridge between cognitive and affective learning (Hawkins, 1969, 1965).
Suggested Practice d: Be conscious of being a desirable role model in appearance, manner, expertise and bearing. The uniform you wear can be a positive influence on the contact if you imbue the agency presence it provides with your own "persona", a sense of resource stewardship and a concern for the visitor. There are other unspoken qualities (self-confidence, fitness, competence etc.) which silently engender respect and contribute to the effectiveness of a contact.	Classical Persuasion Theory, "peripheral route," source factors, the credibility of source, perceived attractiveness, expertise and trustworthiness can persuade and are more important for those less engaged in or able to think about the issue per se (Ajzen, 1992; Hovland et al., 1953; Laswell, 1948). Normative Social Influence Theory suggests that a uniformed ranger primes visitors to utilize existing norms (Eagly & Chaiken, 1993; Cialdini, 1993) and to (silently) remind people of possible consequnces (Vande Kamp et al., 1994).
Suggested Practice e: Model desirable practices and behaviors with your own camp, equipment, stock, and actions at all times. Also carry the equipment, that can be used during step 4 to demonstrate how the visitor can address common impacts in a given area (for example, trowel, lighter, strainer, fire pan or cloth, leashes, hobbles, highline, repellent and other "Leave No Trace" items).	Expectancy Valence theory, posits that even if people agree that x is a desirable behavior, they must see themselves as able to do x before they act (Lawler, 1974). Social-Cognitive Theory, learning the skills necessary to activate behavioral change can be accomplished by observing others before the new behavior is practiced (Bandura, 1986; 1982)
Suggested Practice f: Use the less blaming "passive voice" when describing either undesirable or desired behaviors. *"Camps that are close to a stream tend to displace more wildlife than"* is better than, *" your camp is close to the stream and will displace more wildlife than... "*.	The Elaboration Likelihood Model (Petty and Cacioppo, 1986, Petty et al., 1991) It is important to create a favorable affective and cognitive response from those attending to a message. Blaming can detract from such a response; reducing blame even when blame may be deserved may make the ranger (source) seem more respectful, therefore, more likeable or attractive and effective as an agent of change (Chaiken, 1980).
Suggested Practice g: Routinely remove evidence of prior impacts or undesirable behavior in an area where ART is to be used. Deal equitably and consistently with all violations or undesirable behaviors.	Unattended evidence of impact or unequal enforcement may create "releasor-cues"(Gramann and Vander Stoep, 1987) or "responsibility-denial (Roggenbuck, 1992) both of which may keep people from doing what they normally consider to be the right thing. Cialdini (1996) calls this the discrepancy between injunctive and descriptive norms.
Suggested Preparation: In preparing to use ART, list the types of undesirable behaviors that are common for your area, prepare a message (step 3, implications and step 4, desired behavior) that you might use for each of these situations. Then role-play and critique these ART scenarios.	A good overview of the theoretical basis for role-playing and experiential and field-based approach to training is given by M. Manning and associates (1998).

produce changes in the beliefs, attitudes, and behaviors of visitors that are longer lasting than those produced by traditional law enforcement practices. The theoretical grounding for these reasons can be found, in part, in the literature on persuasion, attitude, and behavior or cognition, and later used to help evaluate the effectiveness of ART in the field.

A Theoretical Grounding for Evaluating the "Authority of the Resource"

Table 1 not only summarizes the basic ART steps and suggested practices but also provides references from the literature that is relevant to particular ART elements. These references and the concepts they offer can then be used to help develop a format for a field–based evaluation of ART. The Authority of the Resource technique relies heavily on what has been called the

"central route" to persuasion as described in the Post-Classical Persuasion, Attitude/Behavior, and Social-Cognitive Theories like the Elaboration Likelihood Model (Petty & Cacioppo, 1986); the Theory of Reasoned Action (Fishbein & Azjen, 1980) and the Theory of Planned Behavior (Ajzen, 1988) and others. The theoretical assumptions directly or indirectly shared by these schools of thought are: a) if changes in beliefs, attitudes, and behavioral intention occur as a result of using active thought processes, deliberation, and the testing of beliefs while scrutinizing a persuasive message, then such changes will be integrated into the person's cognitive structure. As such, they will be more accessible, resistant to change, and predictive of actual behavior than changes prompted by other forms of persuasion; b) even then, most people will weigh the implications of their actions before they decide to engage or not engage in a given behavior; and c) those with newly acquired beliefs, attitudes, and behavioral intentions must be able to see themselves as being in control or able to perform the behavior before they act. All of these assumptions fit well with ART since our goal as resource managers should be to move beyond temporary compliance and reduce undesirable behavior via lasting changes in beliefs, attitudes, and behavioral intentions that are acted on. Moreover, the likelihood of wildland visitors taking the central route or engaging a persuasive message in a thoughtful way is high given the naturalistic setting (Ajzen, 1992), the good intentions, and educational background of most wildland users (Watson et al., 1996) and a desire for more information than that which is sought by other user types (Graefe et al., 2001).

This is not to say that all people will carefully deliberate or "elaborate" on the arguments presented by an ART message. A few may not be motivated to do so and a few may not have enough prior knowledge (or be lacking in other abilities) to engage or process the message (Petty et al., 1992). For those with low levels of elaboration there is another route to persuasion described as the "peripheral route" that has less to do with the message strength or relevance and more to do with: the source of the message (does the ranger appear to be attractive, expert, credible, etc.); how the message is presented (using emotional or non-emotional appeals, etc.); or attention to the characteristics, state, and needs of the person receiving the message (some visitors may be persuaded by references to the norms of others if they have a strong need to conform or for group acceptance). These and other peripheral factors were described by Classical Persuasion theorists like those in the Hovland group (1953) as source, message, channel, and receiver factors. They can often be included in persuasive strategies as relatively simple cues that require only limited information processing and which can still modify behavior, though such changes may be shorter lived (Ajzen, 1992). Some of the source and receiver factors with consistent support in the literature correspond to established ART practices (rangers who are credible and likeable role models, or describing the norms reported by other users). ART elements that use the peripheral route should complement the otherwise central route focus of the technique, making it more robust and effective with a wider range of visitors and situations. ART also includes practices that attend to minimizing situational factors like distraction or biasing in order to allow the deliberating and reasoning process to prosper within an otherwise rich setting. Linking ART to the literature that supports it has helped the authors to develop part of the methods for measuring its effectiveness in the field.

Methods Used

The evaluation of the Authority of the Resource Technique: 1) utilized rangers themselves to chronicle the use of ART in the field; 2) documents how and when rangers choose to

utilize ART; and 3) attempts to assess its effectiveness, appropriate application, and needed refinements. The study utilized systematic participant observation (Babbie, 1995) by wildland rangers in a naturalistic setting. In the Spring of 1998, eight different wildland units in the Bridger-Teton, Tongass and White River National Forests, Great Sand Dunes National Monument, and Rocky Mountain National Park were contacted to see if they would participate in the study. These areas provide a diversity of situations found in the western US where ART might be used. Twenty-five rangers (profiles to follow) were recruited to participate in the study. They agreed to use a structured journal format for approximately 30 days during July and August to record their observations each time visitors exhibiting some type of undesirable behavior were contacted. Participating rangers were given an average of six hours of pre-season training in ART that included issue and message development, role-playing, training in the use of the structured journals, and the protocol for entries. Each, for example, practiced classifying visitor behaviors based on pre-established definitions (Hendee et al., 1990; Gramann & Vander Stoep, 1987). Each was given an instruction sheet to take with them that reinforced training activities and protocol. They were instructed to use ART when they thought it would be appropriate and to record the contact in their journal if ART was used[8]. To improve participation and journal content, it was agreed that the reporting of results would not refer to individual rangers or feature comparisons between the wilderness areas they worked in.

The journal sheets contained 24 items that asked about the details of each contact and several of these asked for comments or descriptions. A sheet was filled out after each contact where, in the rangers opinion, ART was used alone or in combination with traditional law enforcement to address an undesirable behavior. Thirteen of those items were informed by the literature review of persuasive communication. These items enabled rangers and researchers to evaluate: a) the degree to which the transactional elements known to contribute to a central route to persuasion were realized during the contact (visitor's ability to focus, distractions, message theme quality, what questions were asked, opportunities to model or demonstrate the behavior and message acceptance, etc.), as well as b) the ranger's perceived effectiveness of the contact (message acceptance, verbal intention to comply, observed compliance, overall effectiveness, anecdotal comments, etc.). Also recorded were contact numbers, the ranger's name, date, time, geographic location, distance from the trailhead, type of behavior encountered, visitor's mode of travel, visitor characteristics, and visitation patterns.

Structured journals were complemented by a preseason ranger profile that recorded age, education, experience, training, and previous exposure to ART as well as a follow-up survey after the 1999 season. An analysis of 1998 results prompted a 1999 follow-up with those who had returned to work as rangers and asked: a) to what extent they had continued to use ART, b) in what situations they chose to use traditional law enforcement instead of ART, c) which approach takes the most effort for them, and d) if they had any suggestions, in retrospect, for improving ART training.

Descriptive and bi-variate statistical analysis of results was done on fixed-format items, and thematic analysis (Boyatzis, 1998; Babbie, 1995; Stankey, 1972) was used to analyze qualitative data. Cross-tabulations were used to test relationships between a number of vari-

[8] Researchers reserved the right to make final judgements as to whether or not a contact employed an ART approach. Cases judged as non-ART were not included in the analysis of results related to the use of ART.

ables ("type of behavior" and "perceived contact effectiveness," etc.) as well as the relationship between a number of persuasion variables (ability to focus, acceptance of the message, modeling, etc.) and indicators of effectiveness (observed compliance, overall effectiveness of contact, etc.). The reporting of results is enhanced by the use of narrative excerpts from the journals. Follow-up survey comments are not reported separately but integrated into the discussion and recommendations where appropriate.

Results

Ranger Profiles

Of the 25 rangers participating in the study, 17 were from the U.S. Forest Service and 8 were from the National Park Service. Most were male (21) and the average age was 28. Sixteen had been rangers previously, and the average wilderness or backcountry experience for all participants was four years. Twelve participants had been to either Forest Protection Officer training or a Law Enforcement Academy. One-third had previous training in ART. Most (16) had a four-year degree and 15 had completed studies in a natural resource field.

Results from Structured Field Journals

NUMBER AND LOCATION OF CONTACTS MADE. Participating rangers made 242 contacts where undesirable behavior by visitors was observed, ART used, and journal entries made. Of these contacts, 53% were made in camp, 37% on the trail and the rest in other locations. Most of these contacts (91%) occurred in remote wilderness or backcountry settings. Of the 242 contacts where ART was used, 42% came from the White River National Forest, 39% from the Bridger-Teton National Forest, 11% from the Great Sand Dunes National Monument, 7% from Rocky Mountain National Park, and only 1% from the Tongass National Forest where the ranger was assigned to a cruise ship in Glacier Bay and ultimately found few opportunities to use ART.

VISITOR CHARACTERISTICS. A total of 1008 visitors were involved in the 256 contacts. Seventeen percent traveled alone, 37% in groups of two and most (73%) were in groups of fewer than four. While 22% of the visitors were in groups ranging in size from 5-10 and 13 groups had more than 10, if tour boats are discounted, the average group size was 3.9. A majority of visitors contacted were male (68%) and ages were fairly evenly distributed across four age categories: less than 15 (21%), 16–20 (20%), 21–35 (27%), and 36–50 (29%) with the remaining 3% being over 50 years of age. Of those contacted, 39% were day users, 34% stayed from two to four days, 12% from five to seven days, 4% > seven days and 12% planned to stay overnight but had not yet decided or rangers did not determine how many nights. Most traveled by foot (83%), some by horse or with packstock (12%), 3% by watercraft, and 3% by other means when encountered outside of wilderness. As findings for most of these visitor characteristics are consistent with previous studies of wildland visitors (Hendee et al., 1990; Roggenbuck & Lucas, 1987; Cole et al. 1985), visitors contacted for exhibiting undesirable behavior do not appear to differ from other visitors for the characteristics reported above, though data on other variables like experience and education were not gathered.

[8] Fifteen other recorded contacts were later determined to be traditional law enforcement contacts where rangers, in the opinion of researchers, did not really use ART. These cases were not utilized during the analysis of ART contacts.

Table 2. Approach chosen by rangers for contacting visitors who exhibited undesirable behavior

Contact Method	Number (N = 240)	Percent
ART used exclusively	161	67
ART and verbal warning	36	15
Verbal warning then some ART	32	13
Written warning then some ART	5	2
Citation then some ART	2	1
ART and then written warning	1	--
ART and then citation	3	1
Total	240	100

Swain, in his study of wilderness violators (1986) also found similar characteristics between violators and non-violators.

UNDESIRABLE BEHAVIORS ENCOUNTERED. Forty different kinds of undesirable behavior were reported. Most often encountered were "dog off leash/not controlling pets" (36%), "camps that were visible or too close to trails" (22%), and "camps that were too close to lakes or streams" (17%). Other behaviors that were noted were "collection of natural resources" (3.7%), horse or packstock violations (3.7%), and "burning fires where prohibited" or "having a fire that was too large" (3.3%). Group size violations, dispersed camping in sensitive areas, harassing or feeding wildlife, and poor solid and human waste management were all reported on multiple occasions.

APPROACH CHOSEN FOR VISITOR CONTACT. Rangers could choose to use ART exclusively or in combination with verbal or written warnings or citations. They were told in training to do what felt best to them given the situation and to record the sequence in which techniques were used. Table 2 shows that rangers chose to use ART exclusively 67% of the time. Another 15% used ART but felt it necessary to include a verbal warning. In some situations, rangers began with a verbal (13%) or a written warning (2%) or a citation (1%) and then moved to ART. Interestingly, three rangers began with ART and ended up giving a citation and one began with ART and ended with a written warning indicating a decided shift of emphasis for each. In the follow-up surveys, rangers were asked what most often prompted them to begin with or revert to traditional law enforcement techniques. Rangers reported three types of reasons: a) if they sensed people were belligerent or had a bad attitude {"…if I got phrases like 'I have done it this way for many years.'"}; b) if it was an undesirable behavior that occurred often {"Usually if ART was not used, it was because of reoccurring problems—for example, there are only so many times one can use ART to get a group to move their camp out from the shadow of a sign that says 'no camping here'."}; or c) if they were fatigued and felt that ART was too much work {"When I am too busy, I don't have time to think through an ART rationale."}.

Table 3. Type and frequency of undesirable behavior encountered by wildland rangers during the study

Typical category	Number of cases	Percent of total
Uninformed	68	24
Careless	60	21
Unintentional	34	12
Unskilled	30	11
Combination	23	8
Willful violation	3	1
Special case category		
Releasor-cue, regulations not enforced	21	7
Responsibility-denial	18	6
Status-conforming	15	5
Combinations	11	4
Total	283	99

TYPOLOGICAL DISTRIBUTION OF BEHAVIORS ENCOUNTERED. Rangers classified the type of undesirable behavior or behaviors observed for each encounter and often commented on them. These are summarized in Table 3. There were 218 typical cases with: 68 uninformed {"They were unaware of the regulations or the visual impact they were causing."}; 60 careless {"It was raining when they got to camp and they camped right on the trail."}; 34 unintentional behaviors {"These were young boys who wanted to ride their bikes…and for whom wilderness was…an abstract concept…their first experience with it"}; 30 unskilled {"…they seemed very inexperienced, had brand new low-end gear but were receptive to the message about picking an appropriate campsite"}; 23 behavior combinations, and what turned out to be 3 willful violations {"He then said he knew he was in violation…but couldn't resist the view from that site."}, which were initially judged as another type of behavior and addressed with ART before shifting to law enforcement. Rangers also observed 65 special case behaviors including 21 visitors who used releasor-cues {"…other rangers have let us stay at this site in the past"}; 18 who used responsibility-denial {"They had the 'my dog is a good dog' attitude"...so felt they were exempt from the leash regulation."}; 15 who exhibited status-conforming behaviors and 11 combinations of these behaviors. Together, special case behaviors represent 23% of all observed undesirable behaviors—perhaps more than expected.

INDICATORS OF CONTACT QUALITY. As summarized previously in Table 1, within a contact that employs ART well, we would expect to find elements that facilitate effective engagement, information processing, elaboration, etc., which have a theoretical grounding. Table 4 displays six indicators that were tracked by rangers who recorded whether or not an indicator variable was enacted or observed during the contact. Results show that 65 separate distractions were noted and affected nearly a third of the contacts (31%). Common distractions were other people (39%), environmental factors like wind or ice calving from a glacier (14%), dogs (11%), and people being engaged in some task when contacted (10%). Several rangers indicated that they dealt with distractions before proceeding {"I pulled the group together for what ended up being a 20-minute talk."}.

Table 4. Selected indicators of contact quality recorded by rangers using the Authority of the Resource Technique

Indicator	% Yes	% Partially	% No	(N)
Were there distractions?	31	NA	69	236
Was visitor able to focus?	92	NA	8	225
Did visitor understand the message?	89	10	0	237
Did visitor accept the message	78	15	8	228
Did visitor ask questions?	44	NA	57	239
Did ranger model correct behavior?	37	NA	63	234

In spite of distractions, rangers reported that 92% of those contacted showed an ability to focus on the situation and message. Thematic analysis of comments related to focusing yielded three main categories: a) initial attitude – both good and bad influenced the ability to focus {"The visitor was defensive from the moment I approached… could tell by his body language."}; b) timing both good and bad made a difference {"I contacted the group while they cooked breakfast, they were very open…sitting around…seemed at ease…"}; and c) what can be described as ranger initiative, or a good lead-in to the ranger's ART message. It should be pointed out that, contrary to the norm of minimizing camp contacts in order to minimize obtrusiveness, in-camp contacts for dealing with undesirable behavior were generally described as being good timing by the rangers.

Rangers judged that visitors understood their message 89% of the time, partially understood it 10% of the time, and seemingly accepted that message 92% of the time. Somewhat troubling is the result showing that visitors only asked questions about a message 44% of the time. A thematic analysis was done on the 103 questions noted by rangers. It produced four categories of questions: a) questions seeking more information or to improve skills (45%) {"How high should food be hung…how do bears get habituated to human food?"}; b) argumentative questions (19%) {"How do you know for sure it was us?"}; c) questions about regulations (18%) {"Is the leash law in effect for all wilderness areas?"}; and d) a variety of other questions. Since questions are good indicators of a visitor's engagement with and active elaboration of a message, results suggest that the way messages are presented can be improved by inviting questions during or after the message. One would hope that questions, even of the argumentative sort, would accompany most ART contacts using the central route to persuasion.

Rangers reported that they were able to model or demonstrate the appropriate behavior 37% of the time, which is encouraging since not all behaviors lend themselves to modeling and it usually requires extra time to demonstrate proper equipment or techniques or to show visitors a better site for a given activity. In addition to possibly contributing to the attractiveness and credibility of the source, modeling enhances message quality by improv-

Table 5. Researcher's rating of message quality for messages used by rangers to contact wildland visitors who exhibit some type of undesirable behavior

Rating	Number of cases	Percent of all cases
Appropriate/accurate themes	164	69
Somewhat appropriate or indirect themes	42	18
Weak or inappropriate themes	14	6
Used law enforcement or agency authority theme	8	8
Total	N=228	100

ing perceptions of self-efficacy or the visitor's ability to perform or to visualize themselves performing the desired behavior.

MESSAGE QUALITY. Researchers content-analyzed the journal entries where rangers described the themes they used in ART (step three) to reveal the authority of the resource. Themes were classified as containing messages that were either: a) "appropriate and accurate;" b) "generally or indirectly appropriate;" c) "weak" or marginally appropriate; or d) "closer to traditional law enforcement." Results summarized in Table 5 show that 69% of the rangers were judged to have used appropriate and accurate themes {"I showed her the fire ring, she showed me the where she had gotten the firewood. I was able to use that spot to explain how/why firewood is a limited resource here."} or {"…their location too close to the lake ...was an eyesore to others… other visitors had brought this group to my attention…explained why area is sensitive to impacts"}; that 18% had used somewhat appropriate themes, {"…talked about the need to break into smaller groups to disperse the impact… did not discuss the impacts"}; that 14% used a weak message, {"…explained the (unleashed) dog could run onto the road and get hit by a car"}; and 8% which, upon analysis and checking other variables, seemed to rely largely on the regulation itself with ART as an afterthought. Many journal entries for this question tended to be brief, listing the themes used but with only modest details about how they were presented.

PERCEIVED EFFECTIVENESS OF ART CONTACTS. Three items among the structured journal entries are more directly concerned with evaluating the overall effectiveness of ART contacts: 1) the visitor's verbal acknowledgement of intention to comply, 2) observed compliance behavior and, importantly, 3) the ranger's overall evaluation of contact's effectiveness. The first two entries were analyzed by the type of contact made. "Verbal intention to comply" was very high and differed only slightly among contacts where rangers used only ART (97%), ART with some law enforcement (98%), or law enforcement followed by ART

Table 6. Ranger evaluations of effectiveness for encounters where ART was used to initiate an encounter with visitors exhibiting undesirable behavior

Type of Contact	Not effective %	Marginally Effective %	Moderately Effective %	Very Effective %	Total N
ART	8	16	31	46	160
ART with verbal warning	6	33	50	11	36
ART with written warning			100		1
ART with citation		33	33	33	3
Total N	15	43	90	84	232

(97%). Observed compliance is highest with those using more law enforcement (ie. verbal or written warnings or citations) occurs 65% of the time with ART-only contacts, and 60% of the time for those combining ART with some law enforcement (usually a reference to the regulation).

These results may be explained by the fact that ART contacts are often brought to closure once intention to comply is achieved (Table 1). This imparts a positive expectation and is in keeping with the emphasis on the resource and maintaining an unobtrusive and non-intimidating agency presence. This also means that observed compliance is witnessed less often since moving an illegal camp or taking dishwater to camp instead of washing in a stream, for example, would require surveillance longer than is necessary or appropriate. Given these circumstances, observed compliance may be expected to be higher for the more traditional law-enforcement contact where the warning or possibility of a citation, and a ranger who waits to see that compliance has begun, brings with it a more immediate response from visitors

After each contact, rangers rated its effectiveness. Table 6 lumps all the contacts that were initiated using ART (that followed the four steps as prescribed) and reveals that 77% of those using only ART from start to finish (N=160), were rated as very effective or moderately effective. Looking at all contacts where rangers followed ART with verbal warnings, written warnings or citations (N= 40), such contacts were rated as being very or moderately effective 62% of the time. Contacts that did not begin with the ART steps but instead with verbal or written warnings or citations and ART as an afterthought (N= 32) are largely traditional law enforcement contacts and their effectiveness as a central route approach that focuses on a message and its elaboration is questionable. Even if short-term compliance is achieved, the question of long-term attitude or behavioral change would remain in doubt. This is not to say that taking a law enforcement approach is not warranted. In some cases it puts an effective end to undesirable behavior that needs to be halted quickly before damage or injury occurs.

Table7. Ranger evaluations of the effectiveness of ART contacts for each type of Undesirable Behavior exhibited by wildland visitors

Typical behaviors	**Not Effective %**	**Marginally Effective %**	**Moderately Effective %**	**Very Effective %**	**Total (N)**
Uninformed	6	10	39	46	52
Careless	7	24	31	38	29
Unintentional	0	5	24	71	21
Unskilled	0	21	33	46	24
Combination	0	0	41	59	17
Total (N)	5	18	49	72	144
% of Total	(4%)	(13%)	(34%)	(50%)	(100%)

$\chi 2$ =17.43, Significant at p=0.05

Special case behaviors					
Releasor-cue	0%	42%	25%	33%	12
Responsibility-denial	71	14	7	7	14
Status-conforming	0	17	33	50	6
Combination	0	0	50	50	2
Total (N)	10	8	7	9	34
% of total	(29%)	(24%)	(21%)	(27%)	(100%)

$\chi^2 = 23.58$, Significant at $p < 0.05$.

A more meaningful look at effectiveness can be found in Table 7, which describes effectiveness ratings for each type of undesirable behavior (both typical and special case behaviors) addressed with ART only. These contacts were rated as very or moderately effective with 100% of those visitors who exhibited some combination of undesirable behavior (often some combination of uninformed, unintentional, and unskilled behavior), 95% effective with unintentional behaviors, 85% with uniformed, 79% with unskilled, and 69% careless behaviors. These findings reinforce predictions by Hendee et al. (1990), and reviews by Roggenbuck (1992) regarding the use of education to deal with such behaviors. Contact effectiveness is not as high for "special case" behaviors with only 48% of the 34 cases evaluated as either very effective or moderately effective. Especially difficult to deal with were those visitors with responsibility-denial behaviors. ART contacts addressing releasor-cue and status-conforming behaviors showed somewhat different results than those predicted by Gramman & Vander Stoep (1987). Although the number of cases is very modest, ART was more effective with releaser-cue behaviors, less effective with responsibility-denial, and more effective with status-conforming behaviors than Gramman & Vander Stoep predicted a persuasion intervention would be.

ART VARIABLES ASSOCIATED WITH EFFECTIVENESS. The strength of association between seven variables thought to contribute to a well-managed or persuasive ART contact

Table 8. The strength of association between seven persuasion variables and visitor "contact effectiveness" ratings made by rangers using the ART to address undesirable behavior in wildland settings.

Persuasive Element		Not Effective %	Marginally Effective %	Moderately Effective %	Very Effective %	Total (N)	χ^2
Visitor was able to focus.							
	Yes	5	16	39	41	202	32.1
	No	38	31	31		16	
Message quality[1].		4	16	37	43	158	21.41
Visitor understood the message.	Yes	6	15	38	41	205	
	No		100		-	1	27.79
	Partially	13	39	48		23	
Visitor accepted the message.	Yes		8	44	48	172	
	No	72	22	6	-	18	221.72
	Partially	7	57	33	3	30	
Visitor asked questions.	Yes	5	10	41	44	102	11.27
	No	7	26	37	30	129	
Ranger modeled the appropriate behavior.	Yes	6	10	35	50	84	14.85
	No	7	24	42	27	142	

All χ^2 were significant at $p < 0.05$.
1.was determined by researcher analysis of ranger's descriptions of the theme and presentation they used

and the effectiveness ratings assigned to contacts by rangers was tested using cross-tabulations with Chi-Square tests. Table 8 summarizes the results. All seven variables showed significant interrelationships with perceived effectiveness. The strongest association occurs between rangers who modeled the appropriate behavior and those contacts rated as very effective (rangers had modeled or demonstrated the appropriate behavior for visitors in 50% of the cases with contacts were rated as "very effective"). Other variables like the visitor's acceptance of the message and the asking of questions, an indicator that the visitor is elaborating (Petty & Cacioppo, 1986), were also associated with a ranger's perception of effectiveness. These results seem to suggest that attention to including multiple theory-based components known to enhance persuasion, attitude and behavior change, and the other theoretically grounded interventions inherent to ART (Table 1) can improve the perceived effectiveness of a contact.

Discussion and Recommendations

The evaluation of ART does not rely on comparisons of its effectiveness with the results from other studies that evaluate law enforcement techniques or other specific interventions. Instead, it reports and analyzes the perceptions of rangers who use it in the field and establishes a baseline for future comparisons. It also provides data for predictions about the effec-

tiveness of a technique that merges education and interpretation while addressing different kinds of undesirable behaviors in wildland areas, and it identifies which behaviors ART works the best with. It provides information about how and when rangers themselves choose to use ART and evaluates to what extent they incorporate appropriate messages and other theory-based ART components in the process. Since they did in fact choose ART to deal with most problems and rated its use as effective for most of the behaviors encountered, confidence in the technique begins to move from anecdotal to empirical. At the same time, results identify a number of improvements that can be made in both the training for and use of ART. The order in which these will be discussed does not indicate their priority.

When to Interject Agency Authority

The Authority of the Resource Technique can be used alone or in conjunction with varying amounts of agency authority. Step four of the basic ART steps, the explanation of the desired behavior, can avoid any reference to the regulation, it can include a reference to the regulation, or it can be followed by a verbal or written warning or even a citation, though the ideal is to avoid doing so. Of the contacts that began with rangers using ART (82%), 15% ended up incorporating a verbal warning. Those contacts were rated as less effective than ART only contacts. One could conceive of several possible reasons for adding a verbal warning: a) the verbal warning might be compensating for a weak message, b) the ranger may sense that the message is not being accepted, or c) or because the visitor gives no verbal indication of compliance. Any of these things might also leave the ranger feeling that the encounter was less effective as well. When tested, the strength of association between ART/verbal warning contacts and each of these three variables was not significant.

If it is not cues from the visitor that causes the shift to traditional law enforcement, it might be a force of habit add-on or a product of the ranger's own frame of mind. Comments by rangers did point out that the tendency to favor law enforcement over interpretation was often triggered by violations that were aggravated or less suitable for ART (involving an injury for example), visitors who seemed to have a negative attitude, or when the ranger was irritated or fatigued. The latter two can be dealt with but it must be expected that there will always be a few visitors who are not ready to engage an ART message, who are belligerent, or who for other reasons require a traditional law enforcement approach. A rule of thumb that has been learned not only from this study but from previous field experiences is that it is more appropriate to begin with an educational approach and tighten up with warnings or citations if necessary than it is to begin with law enforcement and then try to move into an educational approach. Lastly, it is possible to reference regulations (not a warning) without detracting from an ART approach {"..and that is why we have developed the regulation that permits open fires with the use of firepans and fuel that you bring, but prohibits the gathering or burning of firewood in the canyon"}. As Table 1 points out, there are good reasons to include this type of peripheral route intervention for some visitors who are slow to accept a message or who seem to be using pre-conventional moral reasoning (Kholberg, 1971).

Dealing with Fatigue or Irritation

The reported tendency to stop using ART when fatigued or irritated by having to repeat messages for the same violations {"There are only so many times you feel like using an ART message for dogs off leash."} is understandable. At such times, rangers pointed out, it may take more effort to create an ART message and it is easier to fall back on the authority of

the agency[9]. Knowing this, pre-season or in-service training may be able to help rangers anticipate such situations and miss fewer opportunities for constructive intervention. Rangers encountered 40 types of undesirable behaviors in the seven areas, but six common types of violations accounted for 85% of the contacts made. It is possible to develop strong messages and practice presenting them well for an area's most common violations. If this is done, then the mental effort associated with generating the content for an ART contact can be greatly reduced for the fatigued ranger. Fatigue and irritation might also be addressed by cultivating a sense of professional responsibility, providing the theoretical grounding for the benefits of long-term vs. short-term compliance, and by giving rangers some new coping skills. It would be considered unprofessional, for example, for teachers, bus drivers or receptionists to allow their technical and social skills to decline as the day wears on. The dental hygienist cannot, by definition, bemoan yet another set of teeth to clean. Teaching or interpretation of any kind is sometimes like performing (Timpson & Toban, 1982), and the show must go on. During training, rangers and others may benefit from acquiring some of the skills of the actor who can not afford to let down and who calls on voice, gestures, and movement to energize the moment.

Persistent violations that irritate (dogs off leash, improper campsite locations, etc.) will not only require motivating personnel to "step up" again, but also arming them with the recent research or factual anecdotes that can help to strengthen a message. A message that includes new information about the insidious displacement effects that dogs running loose in wildland areas have on wildlife (Miller et al. 2000) or a detailed description of vegetative impacts, damaged equipment, injuries and user conflicts that were caused the month before when a pack string was spooked by a loose dog on their uphill side, may be enough to cause visitors to reconsider their existing beliefs about a leash regulation. Factual knowledge and site-specific examples of this sort can be chronicled, filed, updated, and made available to new agency personnel. Databases are now used to develop responses for most management issues but are still underutilized when it comes to crafting responses to undesirable visitor behavior.

What Behaviors to Expect and Prepare For

Only 18 out of the 298, or 6% of the undesirable behaviors observed were classified by rangers as willful violations. This includes the 15 strictly law enforcement (non-ART) contacts recorded by rangers but which were not included in most of the analysis, as well as the three that ended up being classified as willful even though rangers utilized an ART approach when initiating the contact. This would suggest that 94% of all undesirable behavior contacts would have at least some potential for using an ART approach. Noticeable, however, are the approximately 42% of all contacts that fell under either the "careless" or one of the special-case typologies, both of which proved to be somewhat less amenable to an educational approach. We may expect then, that in US western wilderness and wildland settings, only slightly more than half of all contacts will be uninformed, unintentional, unskilled, or a combination—the behavior types ART was rated as most effective with and which respond more readily to a purely central route approach. This does not mean we should abandon the use of educational/interpretive approaches with these behaviors; rather, it means that rangers need to be better prepared to deal with careless and special case behaviors given their apparent frequency of occurrence. Special-case behaviors should

[9] Some rangers, however, found that using ART was easier and less stressful than using law enforcement.

be included in the message preparation or role-playing activities for ART to a greater degree than they have been. Rangers should be able to recognize them and know that, while they are not usually malicious behaviors, both special-case and careless behaviors may require higher message quality, the priming and linking of visitor beliefs and attitudes to the specific situation, added references to the norms of other wilderness users, descriptions of agency efforts to mitigate noticeable impacts, explanations for changes in management actions or regulations, {"*Because of increased use and the proliferation of sites like this one where the soils tend to be wet, we have had to change the dispersed camping policy that you are referring to and concentrate campsite impacts at a few more resistant sites on that bench there above the lake where it is ….*"}, and references to existing regulations, depending on the specific behavior (Roggenbuck, 1992; Fishbein & Manfredo, 1992; Gramann & Vander Stoep, 1987).

Improving Contact and Message Quality

Given that distractions were present 31% of the time, it will often be necessary to take measures to counteract them. Gathering people together, moving out of the wind or away from the noise of running water are small measures that can improve interaction and message engagement and which should become a routine part of an effective contact. Rangers in the study seemed to deal with distractions well and reported that most wildland visitors were able to focus. This and the fact that they reported that nearly all visitors were capable of understanding the messages presented likely reflects the higher levels of education, increasing wilderness experience, and generally good intentions of wilderness visitors (Watson et al., 1995). Both findings bode well for the ability of visitors to engage or elaborate on the messages presented to them (Petty & Cacioppo, 1986).

Other important variables contributing to the effectiveness of ART's central route approach include message quality, the message's relevance to the visitor, and the visitor's ability to see themselves performing the desired behavior. Study results and the past experience of the authors during multiple training sessions indicate that improving message quality is one of the most important areas for increasing the effectiveness of ART. The analysis of message themes and comments, the finding that nearly 25% of all the contacts analyzed had themes that were either weak or only somewhat appropriate, that fact that the mean effectiveness of contacts was low in most cases where weak themes were used, and the fact that less than half of the visitors contacted asked questions during the message delivery, all bear this out.

Although it may be possible for an ART contact to be somewhat effective if other interventions are done well (ranger is a desirable role model, seems concerned about the resource, tactfully references the norms of other users and the regulation, etc.), a strong message that uses natural authority is still the heart of the ART approach. Since ART assumes that most visitors care about the resource and other users and will want to do the right thing once they understand what that is, message quality is dependent on carefully revealing to the visitor how a behavior is in fact affecting the resource or the visitor experience. The scope and scale of the revelations in a message can be quite varied. They could use an object of the visitor's interest to create a broad historical perspective {"*These are obsidian chips… from a scraper judging by their size and shape…the work of an ancient tool maker. Interestingly, this is one of a very few wilderness areas where people are allowed to experience Anasazi sites and artifacts in a natural setting that isn't highly regulated like parks or monuments. This rare privilege is only possible if people leave these things in place…for their grand-*

children to rediscover."}, be narrowly focused on the organisms living in and under a drift-wood log on a sandbar, or utilize a large landscape mosaic in order to talk about the habitat needs of wildlife.

Message quality can be greatly improved during pre- or in-service training where area personnel identify the undesirable behaviors that are most frequently encountered in their protected area, detail-specific resource impacts associated with those behaviors, and describe the desired behaviors that can counteract each problem. Specialists who are knowledgeable about the resource issues identified, be they water quality, wildlife impacts, noxious weed or visitor conflicts, can help provide the information needed to improve message strength. It is likely they will be able to point out things in the field that can be used to illustrate the effects of inappropriate behavior on the resource that seasonal rangers might not know about. During training, technical information should be simplified and incorporated into the interpretive themes used in ART messages. Once message content is developed, role playing can pay attention to other things that encourage the engagement and active deliberation on the part of the visitor. Study findings suggest that more pauses and interjections may be needed in order to induce comments and questions from visitors {"*Have you seen cryptogramatic soils before?, "Did I explain that in a way that was understandable?*", or "*Can I answer any questions?*"}. It is not until we know what visitors are thinking that we find the cues that enable us to make messages more relevant or build on what they already know.

Finally, we can help visitors to see themselves as able to perform the suggested behavior. The importance of modeling or demonstrating was born out by the results which showed the association between modeling and contact effectiveness ($\chi^2 = 14.853$, $p=.002$). Rangers who rated contacts as very effective were twice as likely to have modeled or demonstrated the desirable behavior for or with visitors. Not every situation lends itself to modeling the exact desired behavior. It may be enough to show someone an appropriate campsite location, or take out a piece of mesh to explain how visitors strain the food scraps from their dishwater so that they can be packed out, or to go over a diagram that shows how to make a high line. Other times it is possible to directly model the behavior, showing someone how to put on a set of hobbles, help them build a mound fire that leaves no charred rocks, or how and where to collect firewood that is the right size and burns cleanly. This requires that for each frequently observed undesirable behavior, rangers should carry with them the props, equipment, or information needed for modeling desired behaviors. Messages that are complex may also benefit from being reinforced by written materials (Roggenbuck, 1992). Addressing impacts during the fall hunting season (high impact camps, flagging, game poles, entrails, etc.), caused by an influx of users that may not be typical of regular season visitors, can be a challenge. Handing out a small plasticized card that summarizes appropriate behaviors may be a good way of summarizing and concluding an ART contact. It may also disseminate the message to other group members.

In summary, this study documented considerable information about how rangers choose to employ the ART interpretive approach to deal with undesirable behavior. It provides evidence that ART is an effective intervention that complements the anecdotal support that it has received over the years. It provides reasons to believe that, for some undesirable behaviors, ART's theory-based, multiple behavior-influencing strategies are effective in promoting changes in undesirable behavior that may be longer lasting than those provided by traditional law enforcement techniques. Emerging from the study are a number of specific recommendations for managers about how pre- and in-service training can improve on

the effectiveness of ART and related approaches and, for rangers on how to get the most out of the technique as they use it in the field. This first study can be considered to be exploratory to some degree. It establishes a baseline for future comparisons where these improvements are incorporated into the training of protected area personnel.

Suggestions for Future Research

Improving the Use of Structured Journals

The use of structured journals proved to be a good method for involving practitioners in the evaluation of techniques used in the field. Using journals, however, requires consistency in the way the questions are interpreted and in the way entries are made. Some open-ended items require journal or narrative type entries, others may only require keywords or a single sentence. Participants must know when some items are more important and require more detailed comments in order to utilize thematic analysis effectively. We did not give sufficient emphasis to this, and the descriptions rangers wrote about the themes used for the ART message were often too brief and made the classification of message quality difficult at times. Field conditions tend to promote brief entries, and the importance of detail must be given added emphasis if good qualitative data is to be obtained in wildland settings.

Subsequent Studies of ART and Related Interventions

As mentioned, it would now be interesting to do a similar study where the suggested improvements that emerged from this first study are incorporated into the preparation of the next group of rangers who agree to carry journals. Those who participated in this first study, for example, were not exposed to the theoretical grounding for the various behavior-influencing strategies embedded in ART. Doing so may enable rangers to better understand the importance of including a range of strategies during a contact and which ones are the most important for particular kinds of behaviors. The preceding results and discussion have pointed out a number of ways to improve the training for and application of ART, which should be tested and compared with the first study.

Any follow-up study might consider using an experimental design that would allow for a more direct comparison with traditional law enforcement approaches. A control group made up of rangers from several protected areas that offer no formal exposure to ART training prior to the field season could be included. These rangers would simply handle contacts with undesirable behavior as they normally would. Their journals could be modified to exclude references to ART per se, but a relatively detailed description of the approach they employed and the sequence of events during the contact could be requested. A number of the same variables like types of behavior encountered, perceived acceptance, compliance, and effectiveness could be included. This might also provide an indication of the degree to which rangers naturally use educational approaches and what behavior-influencing strategies they employ. The design might include phone interviews with small subsets of visitors who were contacted by rangers using ART and non-ART approaches.

Subsequent studies should include a "wilderness experience" variable that would allow researchers to see if responsiveness to the ART approach varies among wilderness visitors with different wilderness use histories. Given that the sample for the current study was limited to rangers and visitors in western U.S. wilderness areas, one could ask about possible differences in the results that would come from wilderness areas in the east, the south, at the urban interface, or in international wildland protected areas. We might ask if wilderness

users with their typically high levels of education, income, and concern for nature are more responsive to an ART approach than other protected area visitors? Forest Service or Bureau of Land Management multiple use areas, National Park "frontcountry" or local government open space, for example, have higher visitation levels, may deal with a broader range of undesirable behaviors, and often have a diversity of visitors that may present greater challenges to the ART approach. Would personnel in those areas have a different reaction to using the technique? Can the volunteers that so many programs now count on for interacting with visitors be as effective using such a technique?

Each generation of protected area managers will have to deal with depreciative or undesirable behavior. The evolving body of knowledge about how to deal with such behaviors can make this less problematic – especially if managers themselves are involved in the research. Research that continues to probe what interventions or combinations thereof work best in specific situations can have a cumulative effect. The role of interpretation in this effort is clearer to those involved in this study.

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APPENDIX

submission guidelines for authors

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