



A Social Science Plan

for the

Harpers Ferry Center



A Social Science Plan for the Harpers Ferry Center

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A Social Science Plan for the Harpers Ferry Center

Summary

Introduction

The purpose of this report is to provide a plan for social science for the Harpers Ferry Center (HFC) of the National Park Service (NPS). Effective planning, design and production of interpretive media requires an understanding of the relationship between people and interpretive materials. This understanding of people requires a sound scientific basis. Hence, social science research is a necessary and important service to the HFC. A plan for HFC social science can identify and prioritize research needs, increase the usefulness of research results, improve the delivery of information, and reduce costs. The objectives of this plan are to:

- identify the needs for social science research related to the HFC,
- propose a research agenda and specific research projects for the HFC, and
- propose an action plan, schedule, and budget for implementing the research.

The Social Sciences Defined and Described

The social sciences are those disciplines of science that study humankind in relation to its cultural, social and physical environment. This plan for HFC social science focuses on the following social sciences: economics, geography, psychology, political science and sociology. Each has usefulness to the NPS; several are of direct importance to HFC staff and partners.

A Policy Rationale for HFC Social Science

The rationale for the HFC to support and employ social science can be found in policies directing the management of the NPS, in specific HFC mandates, and in individual park unit planning documents. There is a viable national mandate for social science research to support the NPS, and the HFC. It emerges from the NPS Organic Act and mission, enabling legislation, management policies of the agency, and agency-wide initiatives. Further rationale for social science research at the HFC can be found in the mission and policies of the HFC. General Management Plans and Interpretive Plans provide further rationale for social science research relevant to the HFC.

Prior Social Science Research

The relationship between audiences and media products in parks and museums is a process of *communication*. Therefore, the HFC has a basic need to answer the fundamental question of communication analysis: “*Who says what to whom over what channel with what effect?*” Given the importance of this question to the HFC mission, the review of prior social science research is organized into seven sections, which are 1) Communication Theory: An Overview, 2) “Who Says What?": Communicators and Interpretive Messages, 3) “To Whom?": Knowing the Audience, 4) “Over What Channel?": Understanding Interpretive Media, 5) “With What Effects?": Understanding and Evaluating the Impact of Interpretive Media, 6) Additional Issues, and 7) Summary.

Within each section, a representative sample of relevant literature is discussed, and additional research needs are identified.

Employee and Client Views

Two group workshops and fifteen telephone interviews were conducted to obtain input from HFC employees and clients of

HFC products and services. Participants identified key social science research questions relevant to the HFC.

The nominal group workshops and telephone interviews developed a significant and extensive set of social science research questions relevant to the HFC. Three broad themes emerged, including the need to: 1) better understand current park visitors (including their backgrounds, motivations, and opinions and preferences), 2) better understand the public at large (including non-visitors and their values), and 3) better understand the effectiveness of interpretive media.

A Research Agenda

A social science research agenda for the HFC is proposed. Research projects are organized into three categories. The first kind of research project involves descriptive research. A central focus to this research is the question, *"What do current and future HFC clients and audiences need?"* The second kind of research project involves practical experiments. A central focus to this research is the question, *"What are the most effective ways of meeting the needs of current and future HFC clients and audiences?"* A third kind of research project involves formal evaluation. These evaluations are linked to HFC performance, and focus on the question, *"How effective are HFC products and services in meeting the identified needs of current and future HFC clients and audiences?"*

The research agenda consists of a set of interdependent studies that involve descriptive research, practical experiments, and formal evaluation.

An Action Plan

Implementing a social science research program for the HFC will require several specific actions. Research activities can be accomplished in four stages and over several years. Stage 1 is organizing for social science. Stage 2 is building a research base, followed by Stage 3, diversifying the research. Stage 4 is completing the research program. The total estimated budget for all four stages is \$279,000 in 1997 dollars.

I

Introduction

The purpose of this report is to provide a plan for social science for the Harpers Ferry Center (HFC). The HFC is the office of the National Park Service (NPS) established to plan, design, and produce interpretive media for all units of the National Park System. The task is essential to the mission of the NPS, and for several reasons. Interpretive media are critical to communicating with the public the need and necessity of preserving resources, both natural and cultural. Interpretive media are critical to communicating the special significance of individual NPS sites, and the National Park System as a coherent representation of the nation's heritage. And interpretive media are critical to the personal experience of visiting national parks and historic sites—providing visitors with enjoyment, education and a deeper appreciation of history, culture, nature and themselves.

Effective planning, design and production of interpretive media requires an understanding of the relationship between people and interpretive materials. The HFC is essentially in the business of communication, i.e. planning communication systems, designing communication tools, producing communication products. An understanding of communication—between the HFC and its

clients, between HFC interpretive products and audiences—is a prerequisite for an effective, creative and productive HFC.

This understanding of people requires a sound scientific basis. Hence, social science research is a necessary and important service to the HFC. A plan for HFC social science can identify and prioritize research needs, increase the usefulness of research results, improve the delivery of information, and reduce costs. The objectives of this plan are to:

- identify the needs for social science research related to the HFC,
- propose a research agenda and specific research projects for the HFC, and
- propose an action plan, schedule, and budget for implementing the research.

In this report, the focus is on activities of the HFC related to interpretive media.

Extraordinary Challenges for the HFC

This is a critical period in the history of the HFC, and in the delivery of interpretive media to units of the National Park Service. The HFC and its professional staff face extraordinary challenges:

- significant change in the visiting public and audiences for interpretive media,
- altered patterns of tourism that impact park visits and opportunities for interpretation,
- rapidly changing technology for designing, producing and delivering interpretive messages,
- a quickened evolution of public expectations related to communication, i.e. new norms for film, other visual arts, the written word, and voice,
- significant organizational change within the NPS, and how the HFC interacts with its clients,

- the need to meet the requirements of the Government Performance and Results Act and other government initiatives related to customer service and performance, and
- limited budgets, resources and professional staff at all levels of the NPS.

An effective social science plan for the HFC will provide a strategy for the HFC to gain the social science research it needs to accomplish its mission and respond to these challenges.

Overview of the Plan

In this introductory chapter, the purpose and scope of the social science plan are outlined. The social sciences included in the plan are briefly defined and described. As stated above, the objective of this plan is to identify the needs of the HFC for social science research. Chapters 2-4 provide necessary background for developing a research agenda of social science for the HFC. Three sources are examined. The first are policy and planning documents of the NPS, HFC, and several representative NPS units. These reveal a formal mandate and specific responsibilities for conducting social science in support of the HFC's mission, responsibilities, and activities. The second source is a review of the existing literature, organized around the central concepts of communication theory. The third source of information includes a series of employee workshops and interviews conducted throughout the NPS and with HFC contractors. These workshops and interviews, while not part of a formal survey, helped identify critical social science research questions for the HFC.

In Chapter 5, a social science research agenda for the HFC is presented. A series of specific research projects is proposed. For each project, a description, purpose, estimated cost, schedule and potential funding partners are presented.

In Chapter 6, a comprehensive action plan for accomplishing this program of research is presented. The plan describes how the work can be accomplished in four stages:

1. organizing for social science,
2. building a research base,
3. diversifying the research, and
4. completing the research program.

For each stage, specific and practical actions are recommended. Also included is a detailed budget for each stage of the proposed research program. The report includes several appendices.

The Social Sciences Defined and Described

The social sciences are those disciplines of science that study humankind in relation to its cultural, social and physical environment. They are one of the three main divisions of knowledge, the others being the natural sciences and the humanities. There is considerable overlap. History, for example, involves elements of both humanities and social sciences; geography includes both physical geography (a natural science) and human geography (a social science).

While formal listings and opinions vary, several disciplines are commonly considered as social sciences: anthropology (and closely related ethnography), archeology, economics, geography (human rather than physical), psychology, political science and sociology.

The NPS currently has programs in anthropological and historical archeological research, as well as an established Applied Ethnography Program. Much work is conducted by these programs in support of NPS cultural resource management, and in response to legal requirements such as the National Historic Preservation Act (1966, amended 1992) and the Native American Graves Protection and Repatriation Act (1990). The above programs are essential to the NPS, however, their research agenda and organization are beyond the scope of this plan.

Hence, this plan for HFC social science focuses on the following social sciences: economics, geography, psychology, political science and sociology. While these disciplines interact, each focuses upon certain units of study and driving forces important

to understanding human behavior. Each has usefulness to the NPS; several are of direct importance to HFC staff and partners.

Economics (both macro- and micro-economics) treats markets, industries and economies as key units of study; the driving force of change is economic value broadly defined. Economics can aid NPS managers through studies of the costs and benefits of park policies related to interpretation, and the role of parks and interpretive media in the tourism industry, local regional and national economy.

Geography (specifically human geography) treats regions, landscapes and other spatial units (governmental, ecological and so forth) as critical. The central concern is the spatial distribution of people, resources and culture. Geography can aid NPS managers through studies of tourist travel patterns, regional development, land use trends and projections, and human impacts upon park resources, both natural and cultural.

Psychology has the individual as its key unit, and communication is a central driving force. Psychology can assist NPS managers through studies of residents' expectations and visitor experience, interpretive media and other forms of park communication.

Political science focuses upon institutions of the state (at many levels); the central engine of change to many political scientists is power and its use. Political science can benefit NPS managers through studies of public participation in interpretive planning, the role of local communities and interest groups, and by improving organization effectiveness.

Sociology treats social groups, organizations and communities as key units of study, with human behavior its central concern. Sociology can aid NPS managers through studies of demographic trends, cultural values, visitor behavior and public opinion regarding park policies.

These social sciences also are important partners in *interdisciplinary research*. Disciplines such as environmental economics, conservation biology and human ecology have emerged as

important scientific fields relevant to the NPS. Interdisciplinary research, such as studies of visitor impacts upon wildlife or the economic impacts of management policies, requires the social sciences.

Economics, geography, psychology, political science and sociology form the core social sciences discussed in this plan.

II

A Policy Rationale for HFC Social Science

The rationale for the HFC to support and employ social science can be found in policies directing the management of the NPS in general, in specific HFC mandates, and in individual park unit planning documents. The intent of this analysis is to provide specific detailed examples of relevant policy. The analysis has three parts. First, national mandates for social science related to the HFC are presented. Second, HFC policies and mandates are described. Third, several park General Management Plans and Interpretive Plans are reviewed, revealing park-level social science research needs relevant to the HFC.

National Mandate for NPS Social Science

There is a viable national mandate for social science research to support the NPS, and the HFC. It emerges from the NPS Organic Act and mission, enabling legislation, management policies of the agency, and agency-wide initiatives. The Organic Act of 1916 established the NPS and set forth the mission of the agency:

...to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations (16 U.S.C. sec. 1).

Social science research is clearly mandated by the NPS mission statement, as it is a necessary tool for protecting resources and providing for enjoyment. The HFC needs social science research to insure that the products that are designed and produced help to protect resources and provide for enjoyment.

In the Historic Sites Act of 1935, Congress declared that “it is a national policy to preserve for public use historic sites, buildings and objects of national significance for the inspiration and benefit of the people of the United States” (16 U.S.C. sec. 461). The HFC is responsible for preservation work on historic furnishings and museum objects, as well as the production of interpretive media that help communicate their significance to visitors. Social science research is needed by the HFC to fulfill this mandate. For example, studies of exhibit effectiveness are needed to assess the extent to which visitors understand the significance of historic furnishings and buildings.

In 1972, Activity Standards were developed for the NPS. A mandate for HFC social science research emerges from the standards for printing, publications, exhibits, films and audiovisual media. In establishing the standards for information folders, the agency stated that the materials would be provided in “quantities to meet visitor demand” (NPS 1972, p. 2). Determining the nature and scope of visitor demand requires social science research.

The 1986 Interpretation and Visitor Services Guideline developed by the NPS directed that all sound and video recordings should “relate clearly to the basic interpretive themes of the park” (NPS 1986b, Chapter 5, p. 2). In addition, the recordings are to be “accurate and free of religious, cultural and ethnic biases” (NPS 1986b, Chapter 5, p. 2). Social science research is needed to insure that HFC products meet these standards.

The NPS Management Policies (1988) gives explicit support for social science research within the agency. The NPS is to gather scientific data in order to manage the parks:

A program of natural and *social science research* will be conducted to support NPS staff in carrying out the mission of the National Park Service by providing an accurate scientific basis for planning, development, and management decisions (Chapter 4, p. 2, emphasis added).

As a unit within the NPS, the HFC needs social science research to support planning, development, and management related to HFC functions and products.

The NPS Management Policies also state that HFC products should be used to “augment and enhance visitor enjoyment and appreciation of park resources” (NPS 1988, Chapter 7, p. 3). Social science research is needed in order to understand how to achieve these goals, as well as assess progress towards them.

The 1994 Restructuring Plan developed by the NPS set forth seven broad goals for the NPS. Two of the goals are particularly relevant to the need for the HFC to support and employ social science:

1. Help people forge emotional, intellectual, and recreational ties with their natural and cultural heritage (p. 7).
2. Lead in a national initiative to strengthen the recognition and perpetuation of heritage resources and their public benefits (p. 7).

The products that the HFC develops are crucial to achieving both goals. Social science research is needed to determine how to most effectively meet these goals and to assess the extent to which they have been achieved.

The National Park Service has recently approved a plan for furthering social science in the parks, entitled *Usable Knowledge: A Plan for Furthering Social Science and the National Parks*. The plan contains several research questions relevant to the Harpers Ferry Center, such as: How effective are NPS interpretive, educational

and public outreach efforts, and how can they be enhanced? (NPS 1996f). Specific social science research needs were identified, including the need to:

- analyze visitor expectations, attitudes and evaluations of park experiences,
- describe benefits of visitor use and park experiences,
- assess the relevance and effectiveness of interpretive programs, media and public contact activities,
- identify issues and topics that require interpretive efforts, and
- assess the effectiveness of visitors centers and museums (NPS 1996f, pp. 22-25).

Implementation of this social science research agenda is critical to the mission and effectiveness of the HFC.

In response to agency needs and the Government Performance and Results Act of 1993 (GPRA), the NPS has recently developed a Strategic Plan (NPS 1996e) which contains mission goals that the Service will strive to achieve in the next five years. That plan contains further rationale for social science within the NPS:

The ultimate success of the National Park Service in protecting and preserving the nation's parks will depend on the availability of credible scientific and scholarly information on which to make informed management decisions (NPS 1996e, p. 40).

The social sciences are needed to assist the HFC in obtaining "credible scientific and scholarly information" to ensure that their products are most effective in protecting and preserving the parks. Further, GPRA requires each NPS unit to create and monitor performance measures. Social science is needed in order to design and make operational evaluation tools that can measure customer satisfaction with HFC products and services as well as the effectiveness of these products and services.

Harpers Ferry Center Mandate for Social Science

Further rationale for social science research at the HFC can be found in the mission and policies of the HFC. The HFC emerged from an organizational study conducted in 1963 (NPS 1963). In their general conclusions, the Organization Study Team suggested that all activities pertaining to interpretation and visitor services should be combined into one organizational unit - the Division of Interpretation and Visitor Services. With the creation of this new Division, a need developed to geographically center the interpretive production staff. The Harpers Ferry Interpretive Design Center was created. Director George B. Hartzog summarized the role of the center in a memo regarding the establishment of the HFC:

We believe that operation of this Center...will provide an unparalleled opportunity to develop new and creative park management techniques...Centralizing our production efforts in the museum and audiovisual fields will greatly improve the efficiency of these operations (NPS 1969).

Social science research is needed to assist the Center in developing "new and creative" techniques. For example, understanding of public attitudes toward and experience with computers are needed to help guide the design of computer-assisted exhibits. Social science research is also necessary to assess the operation of the HFC. For example, studies of organizational communication and employee attitudes can assist HFC management and lead to improved organizational capacity and efficiency.

The need for the social sciences was reinforced in the role and function statements for the HFC (NPS 1970):

The role of the Harpers Ferry Center is to furnish leadership and provide a focus for environmental program innovation and for maintaining the relevancy of the National Park idea in a world of change...The functions of the Harpers Ferry Center are...to undertake special assignments involving program analysis and environmental planning.

Social science research is necessary for the HFC to perform these roles and functions. For example, understanding of visitors of diverse backgrounds is needed to identify areas for program innovation, and to help HFC staff understand how to achieve relevancy of the national park idea within a multicultural society.

In 1976, a series of organizational changes took place at the HFC. In the memo announcing these changes, the leadership role of the Center was described:

The Center sets standards of excellence in the media. It explores and develops new interpretive techniques and equipment (NPS 1976).

Social science research is necessary to explore and develop interpretive techniques and equipment. For example, studies of visitor opinions and preferences regarding interpretive media are needed to support development of effective and accessible media.

In a study of the HFC designed to “determine if improvements can be made in productivity, responsiveness, and coordination” (Galvin 1989, p. 1), the need for social science research was explicitly stated. One of eleven recommendations asserts that

opportunities should be available for research into innovative and effective interpretation techniques. Evaluation of installed products should be accomplished (p. 4).

Galvin goes on to state that “[i]n the considerable literature that was reviewed for this report there was no research on visitor reaction [to HFC interpretation techniques]” (p. 33). A comprehensive program of social science research is needed to address these limitations.

In the Department of the Interior (DOI) Departmental Manual, the responsibilities of the interpretation division include the formulation of “the interpretation and visitor services policies, standards, programs and procedures designed to increase appreciation, understanding, and enjoyment of visitors to the park” (145 DM 7.2D). The same document states that the HFC “shares

with the Denver Service Center the responsibility for interpretive planning” (145 DM 7.2D). Social science research is needed to evaluate visitor appreciation, understanding and enjoyment, and support interpretive planning.

According to the 1996 Directory of HFC Products and Services, the present mission of HFC is

to prepare interpretive prospectuses and plans for parks to guide their interpretive developments. The Center plans and produces museum and wayside exhibits, audiovisual presentations, and interpretive publications. The Center performs preservation work on historic furnishings, and develops and evaluates new interpretive techniques and technologies. (NPS 1996a, p. 1).

Social science research is critical for the HFC to accomplish this most current mission. For example, studies are needed to understand visitors’ response to historic furnishings, and to evaluate the effectiveness of museum and wayside exhibits.

General Management Plans and Interpretive Plans

General Management Plans (GMPs) and Interpretive Plans (IPs) are documents that direct the planning and management at NPS units. These documents also provide rationale for areas of social science research relevant to the HFC. Three current GMPs and three IPs were reviewed as examples, each representing a different geographical area and type of NPS unit. The plans revealed objectives, issues and needs relevant to the HFC that require social science research.

Adams National Historical Park

A review of the GMP for Adams NHP (NPS 1996d) revealed three areas requiring social science research: a) promoting visitor citizenship, b) increasing visitors’ knowledge, and c) developing cross-cultural communication.

The desire to *promote visitor citizenship* was established in the GMP management objectives:

to relate the story of four generations of the Adams family, interpreting and preserving their contributions to the

development of the United States in order to inspire visitors to become active and informed citizens (p. 18).

Social science research can provide valuable assistance in understanding how HFC products might promote visitor citizenship. Social science research is also required to determine if using HFC products inspires visitors to become active and informed citizens.

The need to *increase visitors' knowledge* was established in the GMP. The GMP for Adams NHP clearly calls for interpretive media to do so:

Through a variety of interpretive media, visitors will learn the stories of the four generations of the Adamses, their contributions, and their involvement with local, national, and international historical events (p. 33).

In particular:

Improved directional signs will guide visitors to each site sequentially, providing a cogent understanding of the Adams story as a whole (p. 19).

Social science research is needed so that the HFC can develop products that effectively impact visitors' knowledge. For example, social science research can help determine visitors' level of understanding and interest in history (including historic furnishings), and the best way to communicate "the story as a whole" about a specific park like Adams NHP.

The need to *develop cross-cultural communication* was apparent in the Adams NHP GMP. The GMP establishes that the presence of visitors of diverse backgrounds must influence the development of interpretive materials:

The Boston metropolitan area is host to people from around the world; therefore, media design and interpretive materials will be developed to serve these diverse groups. The determination of the languages to be used in informational and interpretive media will be based on studies of regional demographics and visitor profiles (p. 29).

Social science research is required to support the development of effective cross-cultural communication with visitors.

Lake Mead National Recreation Area

In the Lake Mead NRA GMP (NPS 1986a), one area of social science research need is evident: increasing visitors' knowledge. This goal is fundamental to the management of the park. The need to *increase visitor knowledge* is emphasized in the management and interpretive objectives in the GMP.

The primary management objective and the way it is to be achieved emphasizes visitor knowledge:

The primary management objective of Lake Mead National Recreation Area is to provide a quality visitor experience in a manner that will ensure visitor safety and will protect the significant resources of the area...These objectives will be achieved by first providing the visitor with adequate and timely information to understand the beauty, fragility, and dangers of the desert and water recreation (p. 12).

The GMP establishes the following objectives for interpretation:

Encourage visitor safety and resource protection.
Provide timely information and orientation.
Educate visitors about the recreation area's resources
(pp. 54-55).

HFC products can play a key role in increasing visitor knowledge. Social science research is required to determine how to increase visitor knowledge. For example, studies are needed to compare the effectiveness of different interpretive media for educating various types of visitors. Social science research is also needed to determine the extent to which visitor knowledge is increased by specific interpretive media.

Nez Perce National Historical Park and Big Hole National Battlefield

A review of the GMP for Nez Perce NHP and Big Hole NB (NPS 1996b) revealed two areas where social science is crucial: a) fostering cultural awareness in visitors and b) developing effective signage.

The need to *foster cultural awareness* in visitors is identified in the GMP. The foundation of the Nez Perce/Big Hole park complex is the culture of the Nez Perce peoples and their story. As a result, fostering cross cultural awareness and appreciation among visitors is a major goal of the park.

In the section of the GMP discussing the desired results of interpretive programs, it states that visitors will:

experience the integrity of the site through interpretive media where necessary and appropriate. Visitors [will] receive enough information to be able to treat each site with respect (p. 6).

The social sciences can help determine which media are most effective, and what kind of information is needed for visitors to be able to treat the site with respect.

The need to *develop effective signage* was also established in the GMP:

Sign guidelines would be developed to indicate the presence of the National Park Service...Signs must meet current standards, be of consistent and pleasing design, and reduce confusion about where the resource is (p. 17).

The HFC can assist in the development of effective signs. Social science research is needed to inform the development of sign guidelines, to determine if signs are pleasing to visitors, and to determine if they reduce visitor confusion.

Everglades National Park

In the Statement for Interpretation developed by Everglades NP (NPS 1995), two key issues that require social science research were identified: a) influencing visitors' attitudes about the environment and b) developing cross-cultural communication.

The need to *influence visitors' attitudes about the environment* was identified in the Statement for Interpretation. This need is reflected in three of the park's interpretive themes:

The importance of maintaining healthy ecosystems as environmental baselines with which deteriorating ecosystems can be compared. The development of this concept should contribute to an awareness that will foster public support when parklands are in danger from environmental threats (p. 5).

The contrast between how pre-Columbian man lived in harmony with the south Florida environment for thousands of years and how modern man has created havoc in the same environment in only 50 years. The development of this concept should create a concern for the future (p. 5).

The responsibility of all citizens to protect the several species of indigenous fauna... [Interpretation] must stress...that their preservation is dependent upon the involvement and concern of citizens (p. 5).

HFC media products can play a key role in communicating such themes and influencing visitors. Social science research is critical to understanding how interpretive media can influence visitor attitudes as well as measuring the extent of such influence in the lives of visitors.

The need to *develop cross-cultural communication* was identified in the Statement for Interpretation:

[Foreign visitors] do attend interpretive programs, which can create unique communication difficulties in mixed audiences...Preliminary investigation suggests foreigners purchase English books, although the National Parks book in German also sells well (p. 29).

Social science research is needed so that the HFC can create products that communicate effectively with international visitors.

Homestead National Monument

In the Homestead NM Long Range Interpretive Plan (NPS 1996c), three key areas that require social science were identified: a) fostering connections for visitors, b) increasing visitors' knowledge, and c) identifying visitor demographics.

The desire to *foster connections for visitors* was established as a goal for Homestead's interpretive media:

The purpose of the interpretation program at Homestead National Monument of America is to provide emotional, intellectual, and experiential connections to homesteading (LRIP, 1996, p. 7).

Wayside exhibits and the interpretive trail guide add dimensions to understanding the relationships among people, plants, and animals and the territory they claim (p. 12).

A variety of interactive exhibits will put people in touch with experiences of the past (p. 13).

Narrative text provided in the park brochure, exhibits, and audio-visual programs will offer the visitor an intellectual experience of connecting a period of history to their understanding of 19th and 20th century events (p. 13).

Social science research is required in order to understand how HFC products can foster such connections for visitors. Research is also needed to measure the extent to which this objective has been achieved.

The need to *increase visitors' knowledge* was identified in the interpretive plan. Among interpretive improvements suggested in the plan was the proposal to move an exhibit located in the visitor center to a kiosk to "give visitors a more relevant experience in gaining knowledge about what they actually see outdoors" (p. 36). In addition, the plan calls for new exhibits in the lobby of the visitor center to "guide the public to other National, State and regional parks in the Midwest area" (p. 37). Social science research is needed to develop kiosks and exhibits that most effectively increase visitors' knowledge.

A need to *identify visitor demographics* was also documented in the interpretive plan:

From 1993 until 1995, zip code information was compiled from the guest register voluntarily signed by visitors. No formal scientific, random survey has ever been conducted

by a research team at the monument in more than ten years (p. 14).

The survey called for in this plan is clearly a social science research project. Identifying visitor demographics will assist the HFC in providing interpretive products that are designed appropriately for visitors.

Rainbow Bridge National Monument

The Interpretive Prospectus (IP) for Rainbow Bridge NM (NPS 1993a) identifies three areas that require social science research: a) increasing visitors' knowledge, b) producing effective video, and c) developing cross-cultural communication.

The need to *increase visitors' knowledge* was strongly reflected in the goals and objectives of the IP. Half of the goals set forth in the interpretive plan seek to promote visitor understanding. Examples of these goals include increasing understanding of the natural resources of the region, and helping visitors understand that the monument's resources do not end at the park boundaries (p. 10). Many of the objectives set forth in the IP also relate to visitor knowledge. For example:

Of the visitors leaving the monument:
Half will be able to identify human impacts affecting Rainbow Bridge.
Half will know that prehistoric people once lived in and around the monument (p. 10).

HFC products are needed to meet these objectives. Social science research is required to determine how best to increase visitor knowledge, to assess the extent to which such increase is occurring, and to evaluate the achievement of the IP's objectives.

The need to *produce effective video* was described in the IP. The IP calls for the production of a video that should "emphasize the preservation and use of Rainbow Bridge as a world class natural and cultural resource" (p. 13). In addition the video would be used to "reinforce the idea that Rainbow Bridge is not just part of Glen Canyon but a special place" (NPS 1993a, p. 13). Social

science research is needed to assist in the production of video which meets these interpretive goals. For example, media studies are needed to identify factors which enhance the effectiveness of video, such as narrator credibility, script length, and use of music.

The need to *develop cross-cultural communication* stems from the sacred nature of Rainbow Bridge to a variety of Native American tribes. Cross-cultural sensitivity is a major concern at the park. The IP asserts that “the issues are complex, and [the Native American] concerns, while deeply felt, are sometimes difficult to convey to those of another culture with a different perception of the world” (p. 6). The plan goes on to state that “to be sensitive to the values and experiences of other people, to bridge the cultural gap, will be the challenge to interpretive managers” (p. 7). Social science research is needed to assist the HFC in cross-cultural communication . In addition, social science research is needed to guide the HFC staff in creating products and services that demonstrate cross-cultural sensitivity.

Summary

This policy analysis reveals a significant mandate for HFC social science. The mandate emerges from the GMPs and IPs of individual parks, from the HFC mission and HFC documents, and from the initiatives, policies and mission of the NPS.

III

Prior Social Science Research

This section reviews prior social science research relevant to the mission of the HFC. The goal of the review is to summarize what is known, and identify what further research is needed. This review is based on a representative sample of social science work relevant to the activities of the HFC, including pertinent holdings from the HFC library. The scope is limited to studies conducted in the United States. A bibliography is included (see Appendix I).

Given its mission, the HFC staff needs to understand the relationship between potential audiences and the products that the HFC plans, designs and produces. The goal of much interpretive media is to enlighten visitors regarding “the significance of cultural and natural resources” (Knudson et al. 1995), such as furnishings, artifacts, and landscapes. Therefore, it is critical that HFC staff understand how this is accomplished, and under what circumstances. Such understanding is also needed in order to develop new techniques and technologies that are appropriate and effective, as well as to know how and on what basis to evaluate them.

The relationship between audiences and media products in parks and museums is a process of *communication* (Cameron 1968, Ham 1983, Knez and Wright 1970, Sharpe 1976, Zuefle 1997). Therefore, the HFC has a basic need to answer the fundamental question of communication analysis: “*Who says what to whom over what channel with what effect?*” (Lasswell 1948). This question is central to the social science needs of the HFC.

Given the importance of this question to the HFC mission, this review is organized into the following seven sections:

1. Communication Theory: An Overview
2. “Who Says What?”: Communicators and Interpretive Messages
3. “To Whom?”: Knowing the Audience
4. “Over What Channel?”: Understanding Interpretive Media
5. “With What Effects?”: Understanding and Evaluating the Impact of Interpretive Media
6. Additional Issues
7. Summary

Within each section, a sample of relevant literature is discussed, and additional research needs are identified. Throughout the chapter, the terms used to categorize interpretive media are those commonly found within the research literature. In some cases, these terms vary from the terms used by the HFC.

1. Communication Theory: An Overview

Since the 1930’s, studies by psychologists, sociologists and other social scientists have examined park and museum visitor characteristics, factors influencing the effectiveness of exhibits and other interpretive media, and learning in parks and museums. Many studies have also documented how the relationship between audiences and media products in these settings is a process of communication (Cameron 1968, Ham 1983, Knez and Wright 1970, Sharpe 1976, Zuefle 1997). Communication is generally understood as a process in which meaning is created and shared (Budd and Ruben 1979, Galvin and Brommel 1982).

That process involves five key components:

- the communicator, or source of the presentation,
- the content of the communication, or message,
- the audience,
- the media, or means by which the message is presented, and
- the effects on, or responses of the audience.

Hence, the communication process between park audiences and HFC interpretive media products at a National Park Service site involves:

- HFC personnel and park staff,
- interpretive messages (usually about cultural and/or natural resources),
- the public (visitors and non-visitors),
- interpretive media: e.g. exhibits, audiovisuals, presentations, and publications, and
- effects on, or responses of the public (visitors and non-visitors).

Explanations of how these components interact have changed significantly over the years. In the major perspective argued in post-war studies, known as the “effects” perspective, the passive audience was seen as being “injected” with information by the sender (Lowery and De Fleur 1983). The “uses and gratifications” perspective followed, which focused on a more active audience consciously and selectively making use of media to their own ends (Lowery and De Fleur 1983). Recently, perspectives on the communication process have offered more balanced approaches. For example, communication is increasingly viewed as a “text” that can vary dramatically, the meaning of which is a product of both creator and audience (Iser 1978).

Within each component of the communication process, and within the interactions among them, there are specific factors that contribute to the effectiveness or ineffectiveness of communication. For example, a visitor’s previous knowledge of a subject will influence his/her interest in an exhibit; the writing style used

in a brochure can influence visitors' reading behavior, and so forth. This review examines key factors that have been studied.

2. "Who Says What?": Communicators and Interpretive Messages

HFC personnel, together with park staff, create media which convey interpretive messages. Hence, in the interpretive media communication process, they are often the communicators or source. The communicator provides and shapes the "raw materials" used in making meaning: facts, narratives, objects (such as furnishings), images and so forth. HFC personnel and park staff then use these raw materials to create wayside exhibits, indoor exhibits, audiovisual presentations, and publications, which visitors then use and respond to. It is difficult to separate "source" factors from "message" factors, as they are so interrelated. Research and theory suggest five major "communicator/message" factors of particular relevance to the HFC media communication process:

- source background and values,
- intentions,
- source credibility,
- message content, and
- message structure.

Source Background and Values

Communication effectiveness can be enhanced by similarity in perspective and style between source(s) and receiver(s) (Glucksberg et al. 1966, Ham 1983). Therefore, it is important for creators of interpretive media to understand the extent and potential of this similarity. Sociological research suggests that the values, ideologies, and intentions of creators influence the messages created (Eagleton 1976, Wolff 1984). Such values, ideologies, and intentions emerge from the individual, as well as from the organizational culture of those who work together to create the product (Wolff 1984).

While a growing number of studies document the background and values of the public and of national park visitors, less study has been made of the background and values of HFC and NPS personnel, or of the contractors which the HFC sometimes engage for services. A few studies have examined the attitudes and values of NPS personnel toward the HFC (Johnson and Swisher 1991, NPS 1985), of NPS park superintendents toward various aspects of the parks (e.g. National Parks and Conservation Association and Colorado State University 1994), and of HFC employees toward their work (e.g. NPS 1987). NPS personnel believe that HFC employees basically share the same values as other NPS employees regarding criteria for interpretive media (NPS 1985).

Outside of the NPS, a few studies have examined the ideology and values implicit in exhibits (e.g. Wallace 1985). No studies have analyzed the type or extent of ideologies and values reflected in HFC products. An understanding of the specific ways in which HFC employees, independent contractors, and NPS personnel shape messages is needed to promote awareness, reflectiveness, and choice in interpretive media planning, design, and production.

Intentions

Another “communicator/message” factor of importance for the HFC is objectives or intentions (Gordon 1971). Virtually all human communications are attempts to achieve goals, and intentions shape the message (Singer 1987). Typically, it is on the basis of intention that the success of communication is judged. Empirical studies of interpretive media such as brochures, signs, exhibits, and audiovisuals suggest that interpretive messages commonly aim to educate, persuade, or both. Specific intentions include:

- to increase visitor knowledge, such as information about exhibit content (Korn 1988) and site rules (Gallup 1981),
- to facilitate visitor orientation (Cohen et al. 1977),
- to facilitate visitor wayfinding (Talbot et al. 1993),

- to increase visitor psychomotor skills, such as how to use a computer (Worts 1990),
- to influence visitor attitudes, such as attitudes toward facility management (Olsen et al. 1984), and
- to influence visitor behavior, such as in what area of a park to camp (Roggenbuck and Berrier 1982).

Often, several intentions or goals are interwoven. For example, it may be necessary to first impact a visitor's psychomotor skills so that he or she can operate the interactive component of an exhibit which aims to increase knowledge about history. Many other goals for interpretation have been described, including nation-building, identity-enhancement, and spiritual gain (Knudson et al. 1995). However, interpretive efforts with these intentions have not been studied empirically.

Source Credibility

Another factor in communication effectiveness is source credibility (Hovland et al. 1953). Source credibility is the degree to which a communicator is perceived as capable of offering valid assertions, and intending to communicate that which is most valid. Low-credibility sources are seen as more biased and more unfair than high-credibility sources. No empirical studies have examined audience perceptions of the credibility of the NPS. Further, the HFC may wish to identify what factors help to establish source credibility relative to interpretive media.

Message Content

Several studies have looked at ways in which message content plays a role in the effectiveness of persuasive communication. Generalizations from this work are:

- Information that is relevant to people and their experiences is more appealing, interesting, and easily processed than information which is not relevant (Ham 1983, Leippe and Eikin 1987, Tilden 1957).
- Threatening or fear-arousing materials create emotional tension, and succeed in producing opinion change, and do so

most effectively when the fear-appeal is kept to a minimal level. When intense feelings of anxiety are evoked, they can interfere with an individual's acceptance of a message (Hovland et al. 1953).

- Simple messages appear just as effective as complex messages in reducing depreciative behavior among youthful park visitors (Vander Stoep and Gramann 1987).
- Dramatized messages may inadvertently encourage, rather than discourage behavior, due to the nature of social norms (Cialdini 1996).
- Concrete messages are more effective than abstract messages at attracting and holding visitor attention at exhibits (Boisvert and Slez 1995).

Such findings offer useful guidelines to planners, designers, and producers of interpretive media. However, further research is needed to identify additional ways in which message content influences the effectiveness of HFC media communication.

Message Structure

Factors related to message structure have been found to influence communication. Studies have shown that:

- A message with an explicit conclusion is more effective at producing opinion change than one with an implicit conclusion, except with a knowledgeable audience (Hovland et al. 1953).
- Both sides of an issue, rather than just one, should be included in a message if it is likely that the audience will be exposed to subsequent counter-propaganda (Hovland et al. 1953).
- An inquisitive style in an interpretive brochure is just as effective as a declarative style for increasing visitor learning in an outdoor setting (Korn 1988).

Further research is needed to identify other message structure factors that influence HFC media communication.

3. “To Whom?”: Knowing the Audience

Communication between people of different cultural groups is known as intercultural communication (Singer 1987). To a certain extent, all communication is intercultural (Sarbaugh 1979), given the different experiences, perspectives, and needs of people. Since culture shapes so much of human experience, the challenges of effective communication across groups multiply as cultures differ. Given the diversity of the American public, as well as the presence of international visitors to the National Park System, it is useful to understand the audience for HFC products within the broad framework of intercultural communication. Four factors are particularly relevant to the HFC:

- the demographic profile of the public, visitors, and non-visitors,
- knowledge, conceptions, and attitudes,
- motivations for visiting, and
- barriers to visiting.

Demographic Profile

In order to design interpretive products to communicate effectively with audiences of diverse backgrounds, the HFC must understand the demographic profile of current and potential visitors. Visitor profiles provide valuable planning information by indicating the “cultures” to which audiences belong (Machlis and Field 1984). With whom is the HFC communicating?

Since the national parks were formed to serve the public, the full range of potential U.S. visitors is reflected in the U.S. population profile. In 1996, there were approximately 265 million people in the United States, of which:

- 73.1% were White,
- 12% were Black,
- 10.7% were Hispanic,
- 3.5% were Asian or Pacific Islander,
- 0.7% were American Indian, Eskimo, or Aleut,

- 19.4% had a disability, half of whom had a severe disability, and
- 13.9% were aged 65 or older (U.S. Bureau of the Census 1997).

In 1996, there were approximately 256 million visits to the national parks (NPS 1997). A comprehensive visitor profile of national park visitors is currently unavailable. A database of statistics regarding national park visitation exists within the National Park Service (Visitor Services Project 1996). The NPS Visitor Service Project, begun in 1982, collects and analyzes information from NPS units on visitor demographics, motivations, opinions, and use patterns. To date, over 85 studies have been conducted. However, no comprehensive summary of the entire database has been made. A sample of VSP site survey reports were included in this review (Fitzgerald and Littlejohn 1996, Fitzgerald and Patterson 1996, Littlejohn 1995, Littlejohn 1997, Patterson 1996, Wall 1996). Based on these reports, as well as several other sources, it is evident that visitors to sites:

- are predominantly well-educated, middle class, and white with a general under-participation of minorities (Antunes and Gaitz 1975, Craig 1972, Dwyer 1994, Dwyer 1995, Dwyer and Hutchison 1990, Hutchison and Fidel 1984, Ittleson et al. 1974, Kelly 1980, Market Opinion Research 1986, McMillen 1983, Stamps and Stamps 1985, Tierney et al. 1996, Washburne 1978, Wright et al. 1991, Yancy and Snell 1971),
- represent all age groups, with the predominant age range of 26-55 years old (Fitzgerald and Littlejohn 1996, Fitzgerald and Patterson 1996, Kindlon et al. 1996, Littlejohn 1995, Littlejohn 1997, NPS 1993b, Patterson 1996, Wall 1996),
- represent roughly equal numbers of males and females (Korn 1995, Kindlon et al. 1996, Market Opinion Research 1986, National Endowment for the Arts 1992),
- are usually accompanied by at least one companion, most often in family groups (Fitzgerald and Littlejohn 1996, Fitzgerald and Patterson 1996, Littlejohn 1995, Littlejohn 1997, NPS 1993b, Wall 1996, Wright et al. 1991), and

- include international travelers, sometimes as a significant portion of the total visitor population (Fitzgerald and Littlejohn 1996, Fitzgerald and Patterson 1996, Littlejohn 1995, Littlejohn 1997, NPS 1993, Wall 1996).

From these data, it is clear that visitors to national parks, outdoor recreation areas, and museums are not representative of the U.S. population. Among the non-visiting public are a high percentage of those in non-white ethnic groups, older adults, and those with disabilities. This fact is critical, since these are the three groups projected to significantly increase by the year 2050 (U.S. Bureau of the Census 1995). And by that year, it is expected that the median age for the entire population will continue rising and that 20.4% of all Americans will be 65 or older. The white population as a proportion of the total will continue to decrease, while other ethnic populations rise in proportion of the total. Hispanics will become the largest minority population in the U.S. (U.S. Bureau of the Census 1995). Given these trends, HFC staff must learn more about communicating with these populations.

Further detailed study of the demographic profile of national park visitors and non-visitors is needed to help HFC staff understand current and potential interpretive media users.

Knowledge, Conceptions, and Attitudes

Those who visit the parks (as well as those who do not) possess knowledge, conceptions, and attitudes relevant to the park experience. Knowledge, conceptions, and attitudes act as lenses through which people think about parks, filter information, and decide what to do (Falk and Dierking 1992). For example, those who are concerned with and knowledgeable about the environment may be more interested in watching an audiovisual presentation about environmental issues in a national park, more interested in detailed information, and more likely to agree with a pro-environment message, than those who are not concerned with and knowledgeable about the environment. The latter group may need a more basic level of information in an

audiovisual presentation, and may need to be shown many sides of the issue as well as why they should care about the issue. Understanding the knowledge, conceptions, and attitudes of visitors and non-visitors relative to parks can help HFC staff design effective interpretive media strategies.

In a public opinion poll, a sample of Americans “strongly believed in the importance of keeping national parks the special and protected areas they have been in the past” (National Parks and Conservation Association and Colorado State University, 1995, p. 2). The value of the parks that was most important to those surveyed was “providing an important experience for future generations” (p. 2).

Studies have shown that peoples’ knowledge, conceptions, and attitudes related to national parks, land, and nature vary by cultural and sociodemographic background (Roberts 1996). Tables 1 and 2 present a summary of relevant findings. Such findings offer useful guidelines to HFC staff for planning interpretive media that communicate effectively with various groups. For example, to help make parks and interpretive messages more relevant to females, Hispanics, Native Americans, and Japanese, exhibit planners and designers could include content about the spiritual and religious aspects of nature, as this is an important component of the attitudes and conceptions of these groups (e.g., Carr and Williams 1993, Goodman 1980, Henderson 1996, Laidlaw 1991).

Table 1: Knowledge, Conception, and Attitudes of Selected Groups Related to National Parks

Whites	Blacks	Native Americans
Places to seek refuge where one can feel close to the origins of human life, offering psychological relief (Meeker 1984)	<p>More likely to find meaning in urban parks and want more parks in urban areas (Market Opinion Research 1986; Meeker 1984)</p> <p>Created by white men and have always been difficult to understand (Meeker 1984)</p>	<p>Created by white men and have always been difficult to understand (Meeker 1984)</p> <p>Places of humiliation and exploitation. Reminders of the destruction of their cultural heritage (Meeker 1984)</p>

Table 2. Knowledge, Conceptions, and Attitudes of Selected Populations Related to Land and Nature

Male	Display greater environmental knowledge than women (Arcury & Christenson 1993; Zimmerman 1996)
Female	Spiritually attuned to nature (Henderson 1996; King 1991; Salleh 1984); socialized to fear it (Henderson 1996; Mitten & Dutton 1993) Stronger feelings and verbal commitment to environmental issues (Arcury & Christianson 1993; Zimmerman 1996) Places to be rid of self and socially imposed limitations (Henderson 1993; Henderson 1996)
Urban	More knowledge of global environmental issues, equal concern (Arcury & Christianson 1993)
Rural	Less knowledge of global environmental issues, equal concern (Arcury & Christianson 1993)
People With Disabilities	Encourages sense of freedom from socially imposed limitations, escape from day to day reality (McAvoy & Lais 1996)
Whites	Nature is not sacred. Utilitarian approach to nature. Feel sanctified by their contact with nature (Altman & Chemers 1980; Machlis 1989; Meeker 1973; Nash 1982; Simcox 1991) Higher interest in, knowledge of and emotional attachment to nature & wildlife (Dwyer & Gobster 1992; Meeker, 1973)
Blacks	Dense forest areas can be associated with fear among children (Dwyer & Gobster 1992) Less knowledge and concern about wildlife, ecological problems and the natural environment (Hershey & Hill 1978; Kellert & Berry 1981; Kreeger 1973; Meeker 1973) Negative attitudes toward nature, wildlife and rural parks and preserves (Bagby 1996; Cleaver 1970; Dorsey 1972; Kellert 1984; Meeker 1973; Washburne, 1978; Woodard, 1988)
Hispanics	Land, religion and family are closely tied (Carr & Williams 1993; Chavez 1996; Garcia 1996; Gramann et al. 1995, McMillen 1983) Perceive lower possibility for control over natural forces (Diaz-Guerrero 1967, 1979) High environmental concern (Simcox & Pfister 1990); harmonious approach to nature (Altman & Chemers 1980; Floyd & Noe 1993; Gudykunst & Kim 1984; Samover et al. 1981)

Native	Nature itself is sacred, even after ecological destruction by humans (Laidlaw 1991; Meeker 1984; Redmond 1996) Custom, practice, and religion are inexorably tied to relationships with the land (Deloria 1969; Gallager 1988; Laidlaw 1991; Redmond 1996)
Asians	Japanese groups tend to have a strong spiritual orientation toward wildlands and forests in particular (Goodman 1980; Hagino et al. 1987) Environmental ethics are based on a more harmonious approach where humans are a part of nature (Altman & Chemers 1980; Ames 1986; Deutsch 1986; Hajime 1967; Hideki 1967; Shaner & Duval 1989; Takeyoshi 1967; Zaidi 1981)

Some concepts and attitudes appear to be similar across diverse groups. For example, the national parks are viewed by many people as “featuring unique scenery, more things to see from the car, often crowded and commercialized” (Market Opinion Research 1986, p. 48). Several studies regarding peoples’ associations with national history reveal that most individuals perceive it as something boring and remote from themselves, but that one’s personal or family history is interesting (People, Places and Design 1990, Silverman 1988, Silverman 1992). These studies also suggest strategies for effective media communication. For example, interpretive media about history might be more effective if the content emphasized possible ties between the visitor’s personal and family history and the site. Further research is also needed to test the effectiveness of interpretive media strategies which utilize and address the knowledge, conceptions, and attitudes of specific demographic groups.

Motivations

Visitor satisfaction is partly determined by the match between expectations, and perceptions of actual experience (Pearce 1988). Therefore, it is important to understand visitors’ motivations for visiting parks. A review of relevant studies reveals the following common motivations for visits among outdoor recreationists and national park and museum visitors:

- to view nature (Carr and Williams 1993, Gramann et al. 1993, Gramann et al. 1995, Lais et al. 1992, Littlejohn 1995, Littlejohn 1997, Market Opinion Research 1986, Mills 1985, NPS 1993b, Schroeder 1991, Wall 1996),
- to see some place new or exciting (Driver et al. 1991, Lais et al. 1992, Market Opinion Research 1986, NPS 1993b, Tinsley and Tinsley 1986),
- to learn about history (Fitzgerald and Littlejohn 1996, Littlejohn 1995, NPS 1993b, Patterson 1996, Wall 1996),
- to get away, escape, or relax (Carr and Williams 1993, Dwyer and Hutchison 1990, Gramann et al. 1993, Littlejohn 1997, Market Opinion Research 1986, Schroeder 1991),
- to spend time with family/friends (Carr and Williams 1993, Fitzgerald and Littlejohn 1996, Gramann et al. 1993, Gramann et al. 1995, Lais et al. 1992, McMillen 1983), and
- to get physical exercise (Gramann et al. 1993, Littlejohn 1995, Market Opinion Research 1986).

Visit motivations are linked to cultural values. Some studies have found that the motive of spending time with family and friends is particularly strong among Blacks and Hispanics (Carr and Williams 1993, Gramann et al. 1995, McMillen 1983). The extent to which visit motivations vary by cultural and demographic background warrants further study.

Additionally, the relationship between visitor motivation and interpretive goals (such as learning, attitude change, and behavior change) remain to be studied systematically. Understanding how to acknowledge and accommodate visitors' motivations within interpretive design seems likely to enhance the success of interpretive media communication.

Barriers

Many people are unable or unwilling to visit national parks due to leisure barriers. Ellis and Rademacher (1986) define a leisure barrier as "any factor which precludes or limits an individual's frequency, intensity, duration, or quality of participation in

recreation activities” (as cited in Goodale and Witt 1989, p. 440). The most commonly identified leisure barriers across the population include: lack of interest, lack of facilities, lack of transportation, lack of time, lack of money, lack of abilities, lack of awareness, and lack of leisure partners (Boothby et al. 1981, Christensen and Yoesting 1973, Dottavio et al. 1980, Francken and van Raij 1981, Godbey 1985, Howard and Crompton 1984, Jackson 1983, Jackson and Searle 1983, McGuire 1985, Romsa and Hoffman 1980, Searle and Jackson 1985, Witt and Goodale 1981).

Barriers for minority non-visitors and people with disabilities include but are not limited to:

- a lack of culturally relevant programs/services (Bitgood and Thompson 1993, Hood 1993, Roberts and Drogin 1993),
- low representation of their race/ethnicity among staff, other visitors and/or advertising (Carr and Williams 1993, Didriksen 1973, Dwyer and Gobster 1992, Falk 1993b, Floyd and Gramann 1990, Godbey and Henkel 1976, Payne and Theo 1971, Roberts and Drogin 1993, Roberts and Drogin 1996, Simcox and Pfister 1990), and
- experiences or fear of discrimination/racism (Falk 1993b, Hood 1993, Roberts and Drogin 1993, Roberts and Drogin 1996, Tierney et al. 1996, West 1989), and limited or lack of services for people with disabilities (Hamilton and Robb 1994).

In planning, designing and producing interpretive media, particularly media that might be accessed by non-visitors (e.g., brochures, web sites, films) and/or used for outreach purposes, the HFC may wish to address these barriers. How to do so most effectively requires further research.

4. “Over What Channel?”: Understanding Interpretive Media

The question of media effectiveness in parks and museums has been a focus of research for many years. Scholars have recognized that in order for interpretive media to facilitate communi-

cation of any intention, several steps or intervening processes must occur (Koran and Koran 1986). Given a medium such as a wayside exhibit, a visitor must:

- be attracted to it, or motivated to perceive it (Screven 1986),
- pay attention to it, or spend time with it (Screven 1986), and
- perceive it, or recognize information with ones' senses (Koran and Koran 1986).

The processes of attraction, attention and perception are key precursors to media engagement and subsequent outcomes or effects (Bettinghaus 1968, Screven 1986).

Based on this understanding, two major groups of interpretive media studies in parks and museums exist:

- descriptive studies of “baseline” or typical visitor behavior with interpretive media; and
- observational and experimental studies that have identified media variables or factors which influence visitor attraction, attention, and engagement.

Visitor Behavior with Interpretive Media: Baseline Trends

In order to understand factors that appear to influence visitor “response” in the communication process, it is helpful to know how visitors typically use interpretive media in parks and museums. From the visitors' perspective, interpretive media are used for several purposes, including education, entertainment, orientation, wayfinding (Bitgood 1988a), and circulation or “how visitors make their way through the facility” (Bitgood 1988a). To some extent, visitors appear to self-select to media they find most enjoyable and suitable to the experiences they seek (Mullins 1980, Mullins and Hanna 1981).

The Public Area Recreation Visitor Study (PARVS) examined the interpretive participation of visitors to NPS sites (Wright et al. 1991). Data show that approximately half of all visitors participate in one or more interpretive activities during a National Park visit. The greatest number (37.1%) participate in non-

personal interpretive activities only. Visiting a museum or visitor information center is the most common interpretive activity. Participation in interpretive activities tends to be a family activity.

Participation in interpretive activity varies by certain demographic and background variables (Wright et al. 1991). Those who participate tend to be white, well-educated, of slightly higher annual income, and between the ages of 29 and 38. Those who do not participate tend to be minorities, less well-educated, of slightly lower annual income, and either younger than 29 or older than 38 years of age. Most non-participants are first-time visitors. Of particular relevance to the HFC, those who use non-personal media more than personal media are those in friendship groups, of slightly lower annual income, and between the ages of 29-38 (Wright et al. 1991).

The NPS Visitor Services Project Database (1996) also contains data on visitor use of interpretive media during a park visit, as well as opinions regarding the importance of various media. General preferences may be inferred from these data, which were gathered through visitor surveys. Other studies have utilized observational methods to examine visitor behavior with exhibits, visitors' centers, labels, maps, directional and informational signs, computers, and audiovisuals. Basic patterns are presented below, arranged by media.

Exhibits, Visitor Centers, Labels

- In some national parks, many visitors use visitor center exhibits (Fitzgerald and Littlejohn 1996, Littlejohn 1995, Littlejohn 1997, Patterson 1996, Wall 1996, Wright et al. 1991).
- In some national parks, many visitors consider visitor center exhibits to be extremely or very important (Fitzgerald and Littlejohn 1996, Littlejohn 1995, Littlejohn 1997, Patterson 1996, Wall 1996).
- In some national parks, many visitors consider wayside exhibits to be extremely or very important (Fitzgerald and Littlejohn 1996, Littlejohn 1995, Littlejohn 1997, Patterson 1996, Wall 1996).

- In indoor exhibits, visitors show a tendency to continue walking in the same direction, with a bias toward turning to the right (Klein 1993, Melton 1933).
- The routes visitors follow often vary considerably from the intended sequence in indoor exhibits (Falk et al. 1985, Griggs 1983).
- Visitors go through exhibits selectively, stopping at things that attract their interest (Falk and Dierking 1992, Melton 1933, Zube et al. 1978).
- Visitors pay little attention to indoor exhibits, with an average viewing time of approximately 8 seconds (Screven 1986).
- Attention to labels is also low (Cone and Kendall 1978, Rosenfeld and Turkel 1982, Serrell 1977). Most visitors spend, on average, only a few seconds reading a particular label, although some people do read most or many labels (Falk 1982, Screven 1986).

Maps and Directional Signs

- In general, visitors are more likely to consult maps or directional signs than to ask directions of attendants (Cohen et al. 1977).
- Visitors use wall maps to determine which exhibits to visit, not for wayfinding (Cohen et al. 1977).
- Directional signs are often used for wayfinding, aiding in reaching specific exhibits chosen from board or wall maps (Cohen et al. 1977).
- Hand-held maps are the most frequently used device for wayfinding (Hayward and Brydon-Miller 1983, Shettel-Neuber and O'Reilly 1981).

Printed Materials in General (Maps, Brochures, and Handbooks)

- In some national parks, many visitors use printed materials (Fitzgerald and Littlejohn 1996, Littlejohn 1995, Littlejohn 1997, Patterson 1996, Wall 1996).

- In some national parks, many visitors consider printed materials to be extremely or very important (Fitzgerald and Littlejohn 1996, Littlejohn 1995, Littlejohn 1997, Patterson 1996, Wall 1996).

Interactive Microcomputers and Audiovisuals

- Interactive microcomputers are used more by younger visitors than older ones (Dottavio and Noe 1983, Zales 1985).
- Groups with one adult and children used an interactive videodisc and computer program more than other groups did; groups with boys did so more than groups with girls (Morrissey 1991).
- The average amount of time any one person uses an interactive computer information system within an exhibit or visitor center appears to be approximately five minutes or less (Dottavio and Noe 1983, Hilbrunner and Haas 1982, Miller 1982, Zales 1985). For an interactive videodisk and computer combination, the average is six minutes (Morrissey 1991).
- In some national parks, many visitors view audiovisual slide shows (Fitzgerald and Littlejohn 1996, Littlejohn 1995, Littlejohn 1997, Patterson 1996, Wall 1996).
- People use audiovisuals, but most do not do so for long (Beer 1987).
- In some national parks, many visitors consider slide shows to be extremely or very important (Fitzgerald and Littlejohn 1996, Littlejohn 1995, Littlejohn 1997, Patterson 1996, Wall 1996).

These studies shed light on basic patterns of visitor behavior toward various interpretive media. However, additional studies are needed, including studies of wayside exhibit and publication use. Further explicit study of visitors' preferences for different media is also warranted, as are more in-depth studies which examine interpretive media use by visitors of various demographic backgrounds.

Media Characteristics Which Influence Visitor Attraction, Attention, and Perception

A number of studies have determined that certain media characteristics are associated with successful attempts to alter visitors' basic behavior patterns. In particular, studies have identified interpretive media factors which influence visitor attraction, attention, and perception. As these three processes are considered to be precursors to learning, attitude change, and behavior change, the identification of media characteristics which "make a difference" is useful to interpretive media planners, designers, and producers. Related studies have largely employed observation methods, and in some cases, an experimental approach in which participants are randomly assigned to control and experimental groups. Factors which can influence visitor attraction, attention, and perception are presented below, by media.

Exhibits

Factors which influence visitor attraction, attention, and perception include:

- linear design: increases the probability that all objects will be looked at (Bitgood et al. 1991),
- text-only vs. non-text only: exhibits with object displays are visited more often than text-only displays (Beer 1987),
- order of exhibit: visitor attention to exhibits is highest for the first exhibits encountered, after which time cognitive fatigue tends to set in (Bell et al. 1978),
- participatory vs. non-participatory: exhibits which allow the visitor to make some response are most successful in attracting and holding visitor attention (Gillies and Wilson 1982, Morrissey 1991),
- pictorial and/or sensory elements vs. verbal elements: pictures and sensory features of exhibits such as photos and moving objects are more likely to attract and hold visitors than verbal elements (Peart 1984, Shettel 1973),

- presence of computers: computers in an exhibit attract a higher percentage of visitors than any other component (Hilke et al. 1988); and increase amount of time visitors spent in exhibit (Hilke et al. 1988, Morrissey 1991),
- presence of audiovisuals: visitors are attracted by them (Beer 1987),
- multisensory: exhibits which engage more than one sense produce longer viewing times (Koran et al. 1986, Peart 1984), and
- sequencing: exhibits where elements have an “unstructured” arrangement (i.e. visitor could move freely anywhere in the exhibit) attract and hold visitors’ attention more than a “structured” arrangement (i.e. visitor is moved through exhibit in a pre-determined sequence) (Falk 1993a).

Labels

Characteristics which influence visitor attention include:

- length: short labels are read more frequently than longer ones (Bitgood et al. 1986, Borun and Miller 1980),
- location: labels are more likely to be read if they fall easily within the visitors’ line of sight in terms of height off the floor and proximity to objects being viewed (Bitgood et al. 1990), and
- directive vs. non-directive: labels that challenge visitors to engage in a specific task, such as comparing objects, result in more label-reading than those which do not (Bitgood et al. 1986).

Maps

A characteristic which influences visitor attention and perception is:

- cognitive simplicity: maps are most effective in engaging visitors when they involve the least number of “cognitive steps.” Such steps involve the need to transform the map to reality, as in black and white maps rather than color, or a map that is of a different orientation than the space to which it refers (Pearce 1988, Pearce and Black 1984).

Historic Furnishings and Other Objects

Characteristics which influence visitor attraction and attention are:

- size and movement: people tend to approach large objects, sounds, and moving objects. Such visual attractors exert strong influence over circulation patterns (Bitgood et al. 1991) and also generate longer viewing times (Bitgood and Patterson 1986).

While these findings provide useful guidelines for HFC staff, further studies of media characteristics are needed. In particular, studies are needed to examine which characteristics of brochures, historic furnishings, and audiovisual media influence visitor attraction, attention, and perception. Studies are also needed which explore the influence of media characteristics on visitors of diverse backgrounds.

5. “With What Effects?”: Understanding and Evaluating the Impact of Interpretive Media

Typically, the main criteria for communication effectiveness of interpretive media in parks and museums is the extent to which visitor effect or response matches the intention of the communicator. Some studies have documented the extent to which different interpretive media promote visitor learning, attitude change or behavior change. Some studies have examined the influence of a particular medium on visitors, and/or compared the relative effectiveness of two different media given the same goal. Most of these studies have utilized observational and experimental methods. This section presents relevant findings by media, and reviews key issues related to evaluation of interpretive media.

The Role of Interpretive Media in Learning, Attitude Change, and Behavior Change

Exhibits

A number of studies have documented that exhibits foster learning. Many studies have found that exhibits increase cognitive learning in children (Eason and Linn 1976, Gillies and

Wilson 1982, Herbert 1981, Sneider et al. 1979, Van Rennes 1978) and in adult visitors (DeWaard et al. 1974, Gillies and Wilson 1982). Interestingly, all of these studies examined participatory or interactive exhibits.

Fewer studies have explored the influence of exhibits on psychomotor learning. Participatory exhibits have been found to promote psychomotor learning in science-related exhibits among children (Eason and Linn 1976, Sneider et al. 1979).

Maps and Signs

Directional signs are effective in facilitating visitor orientation and wayfinding, somewhat more so than maps (Cohen et al. 1977). Maps can educate visitors and lead to a reduction in wayfinding difficulties, provided they are simple (Talbot et al. 1993). In terms of promoting knowledge, informational signs were found not effective in transmitting management information to visitors at nature preserves (Olsen et al. 1984). However, signs can influence behavior, by producing increased compliance with certain boating rules in a recreation area (Fritschen 1984).

Brochures

Several studies of brochures have been conducted. Brochures were successful in impacting visitor knowledge of a botanical garden in that environment (Korn 1988). Brochures were also effective in increasing campers' knowledge of rules (Gallup 1981), and knowledge of nature preserve management (Olsen et al. 1984).

Several studies have examined the effectiveness of brochures at influencing behavior. Brochures describing a canoe area (Roggenbuck et al. 1982) and in a camping area (Roggenbuck and Berrier 1982) helped to disperse users from crowded locations. Brochures were also effective in reducing tree damage and litter in a campground (Roggenbuck and Berrier 1982). Brochure plus personal contact was even more effective than a brochure alone in this study. While brochures containing cartoons did increase campers' knowledge of rules, they did not decrease

rates of rule violation in a state park (Gallup 1981). Only one study documented the impact of brochures on visitors' attitudes regarding nature preserve management (Olsen et al. 1984).

Audio

A recorded message had a greater impact on visitor knowledge than did an informational sign in a visitor center in Mount Rainier National Park (Wagar 1972). A cassette also increased the knowledge of first-time visitors at a trail area (Feldman 1978).

Audiovisual Programs

An automated slide program was found to increase visitor knowledge of the ecological effects of fire in Grand Teton National Park, and positively influence visitor attitudes toward park fire management policy (Nielsen and Buchanan 1986). This study compared the impact of the slide program to that of a guided tour with interpreter, and found no significant differences between the two methods. A slide show about services at Colonial Williamsburg, together with a brochure and map, brought about a considerable drop in orientation questions asked by visitors, as compared to the map and brochure without the slide show (Lankford 1995).

Interpretive media have been found to be effective in influencing visitors' knowledge, attitudes, and behavior in some circumstances. Effectiveness varies by media. For example, participatory exhibits and brochures are effective at increasing visitor knowledge, while directional signs and maps are less so. Directional signs and maps are effective in promoting visitor orientation. Brochures are effective for influencing visitor behavior.

Since the majority of the studies were conducted with general samples of visitors, little is known about the extent to which the findings may differ by cultural or demographic background. In particular, little is known about the interpretive media-related behaviors of cultural groups who do not frequent parks. Such subpopulations deserve further study. Further research is also needed on the effectiveness of wayside exhibits, non-participatory exhibits, publications, and computers. Further research is

needed to understand the role of interpretive media in visitor learning, behavior change, and attitude change.

Evaluation

Evaluating the effectiveness of interpretive media is an ongoing need for the HFC. The evaluation of interpretation in the National Park Service has been discussed by many writers (Machlis 1986). In determining the best ways to conduct such evaluation, social science literature suggests four critical factors:

- the basis for evaluation (Screven 1976, Wagar 1976),
- timing (Bitgood 1988b, Neuman 1997),
- methodological approach (King et al. 1994, Neuman 1997), and
- multiple measures (Ham and Krumpke 1996).

Basis for Evaluation

There are several alternative approaches to evaluating HFC interpretive media. These include:

- a goal-referenced approach: interpretive media are evaluated on the basis of source-intended goals, and if possible, design is adjusted until the goals are met (Screven 1976, Sharpe and Sharpe 1986),
- visitor reactions (expectations) approach: visitor reactions and satisfaction levels are evaluated. Satisfaction is likely based on initial expectations, the experience itself, the actual outcome, and the attributions one makes about the outcome (Pearce 1988),
- visitor's goal-referenced approach: interpretive media are evaluated on the basis of the achievement of visitor's intended goals (Parasuraman et al. 1988), and
- NPS client reactions approach: reactions and satisfaction levels of NPS park unit clients are gathered. This can include assessments of product quality, timeliness of process, cost-efficiency, and impressions of visitor reactions (NPS 1985, Johnson and Swisher 1991).

Timing

Evaluation may take place before or during interpretive media development (front-end evaluation), after installation but while there is still time to alter the media with the information gathered (formative evaluation), or after the media production is completed (summative evaluation). Ideally, evaluation should occur at all three stages (Ham 1986). However, the timing of a particular evaluation depends upon the type of information desired (Ham 1986).

Methodological Approach

Evaluation involves gathering information through either a quantitative or qualitative approach, or both. Quantitative evaluation uses numbers, scores, or costs to summarize results, and to capture frequency and breadth of response. Qualitative evaluation describes what people say or do (Knudson et al. 1996), and can capture feelings, emotions, qualities, context, and depth. It is generally agreed that effective on-going evaluation programs will use both approaches, as well as different methods (King et al. 1994, Neuman 1997, Roggenbuck and Propst 1981). However, the choice of methodological approach for a given evaluation depends upon the information desired.

Multiple Measures

Given the complexity of the links between cognition, learning, attitudes and behavior, multiple measures should be used in evaluating media effectiveness (Ham and Krumpal 1996). For example, to assess the impact of an exhibit on behavior change, it is preferable to measure the extent to which primary beliefs were altered, as well as gather evidence of attitude change, and evidence of behavior change (Ajzen 1991, Fishbein and Ajzen 1975, Fishbein and Manfredo 1992).

Social science can provide HFC staff with guidance regarding effective evaluation. Further research is needed to determine the most useful and efficient approaches and strategies for evaluating HFC products and services.

6. Additional Issues

Social science research sheds light on three additional issues relevant to the mission of the HFC: organizational communication and attitudes, new techniques and technologies, and the role of theory.

HFC and NPS: Organizational Communication and Attitudes

In order to plan, design, produce, and implement interpretive media products for the public, HFC personnel must communicate effectively with another key population besides the public. That population includes the personnel of the individual park units for which the media are created, and contractors that work with the HFC. These individuals are clients of the HFC.

Effective communication within organizations, or within subgroups of the same organization, is crucial to the perpetuation of those organizations (Scott 1987, Singer 1987). In the case of the HFC, three aspects of organizational communication are particularly important, and have been examined through social science research within the National Park Service:

- intragroup attitudes,
- intergroup awareness, and
- intergroup attitudes.

Intragroup Attitudes

In most circumstances, the more satisfied the individuals in a group are, the more effectively the group will function (Singer 1987). Hence it is useful for the HFC to monitor the morale of its employees. An HFC employee survey conducted in 1987 found that employees “overwhelmingly enjoy the physical setting and work environment, and share a deep and sincere commitment to the work of the Center and to the mission of the National Park Service” (NPS 1987b, p. 1). However, “numerous remarks concerned poor communication and cooperation among divisions. There was also a feeling that top management was not in touch with the feelings of employees” (NPS 1987b, p. 1).

Intergroup Awareness

In order for the HFC to fulfill its mission, the staff of NPS park units must be aware of the services available from the Center. A 1991 study indicated that some NPS personnel were not aware of the range of products and services the HFC provides; “notable proportions of superintendents had no impression or are unaware of many HFC services” (Johnson and Swisher 1991, p. 28). Further, up to one-fifth of superintendents surveyed who thought their park would need a particular service in the next five years did not know it was available from the HFC (Johnson and Swisher 1991).

Intergroup Attitudes

Studies have examined the attitudes of park personnel toward HFC organization and products through surveys of superintendents, and park employees (Johnson and Swisher 1991, NPS 1985). These reports present extensive data on the attitudes of NPS personnel. Generalizations from these studies include:

- HFC is regarded by NPS in a generally positive way,
- HFC is viewed as an essential part of NPS, and as sharing the same attitudes and values as field personnel,
- consistent positive impressions for all services and products has yet to be attained, and
- the two major complaints and barriers to use of the HFC are slow speed of implementing work, and cost.

Studies have also surveyed park superintendents’ perceptions of national park conditions (e.g. National Parks and Conservation Association and Colorado State University 1994). Several findings are relevant to HFC. Park superintendents grading the condition of seven different aspects of parks gave the topic of “Information Quality” (including interpretive programs and exhibits and quality of information distributed) some of the highest evaluations. They gave the topic of “Special Programs” (including special programs and services for schoolchildren, senior citizens, people with disabilities, disadvantaged youth,

non-English speaking visitors, and minority populations) among the lowest evaluations (National Parks and Conservation Association and Colorado State University 1994).

Continued monitoring of intragroup attitudes, intergroup awareness, and intergroup attitudes can help the HFC improve its organizational communication. In particular, studies are needed to determine the extent to which attitudes and awareness levels have changed or are changing, and to understand how HFC/NPS relationships affect the process of generating timely and cost-effective interpretive media.

Toward New Techniques and Technology

A significant part of HFC's mission is to "develop and evaluate new interpretive techniques and technology." The HFC can be aided in this effort through social science which sheds light on peoples' emerging attitudes toward technology and innovation (such as computers and virtual reality), and on the social process of adoption and diffusion of innovations.

In general, reactions to new technology appear to be shaped by an individual's perception of relevance, usefulness, fun, and ease of use (Davis et al. 1989, James 1993). However, attitudes also appear to be correlated with gender, age, socioeconomic status, race/culture, and experience/ownership.

Computer Technology

Studies of computer technology and people have yielded several findings:

- In determining intention to use computers, perceived usefulness was more influential than perceived fun in a sample of graduate students. However, perceived fun correlated more strongly with satisfaction than did perceived usefulness (Igbaria et al. 1994).
- Males tend to have more positive attitudes toward computers and technology than females (Badagliacco and Tannebaum 1989, Kinnear 1995, Kohl and Harman 1987, Krendl et al. 1989, Massoud 1991, Shashaani 1994, Weil and Rosen 1995, Wilder et al. 1985).

- Males have more experience with computers than females (Arch and Cummins 1989, Badagliacco and Tannenbaum 1989, Hawkins 1985, Kinnear 1995, Rocheleau 1995, Weil and Rosen 1995).
- Older people have more negative attitudes toward computers and technology in general than do younger people (Marquie et al. 1994, Massoud 1991, Pope-Davis and Twing 1991, Weil and Rosen 1995).
- Adults with less education know less about computers than a national sample does (Marquie et al. 1994, Massoud 1991).
- Hispanics have more negative attitudes toward, and less experience with computers than do other ethnic groups (Badagliacco 1990, Badagliacco and Tannenbaum 1989).
- People with more experience using computers have more positive attitudes toward them than individuals who have not used computers (Arndt et al. 1985, Marquie et al. 1994, Pope-Davis and Twing 1991, Weil and Rosen 1995).

Virtual Reality

Virtual reality is an environment created by a computer in which a user feels present (Biocca 1992). The public has responded with fascination (Churbuck 1990, Diltea 1989), but no systematic research is available on public attitudes regarding virtual reality. Virtual reality could be an effective means of learning about the environment, resulting in improved environmental behavior (Turkovic 1996). However, "virtual nature" may never replace a real-world encounter with living objects, and may validate an artificial sense of reality (Clark 1995). Due to the expense and technological expertise required to operate a system, virtual reality is likely to diffuse slowly until further research is conducted (Biocca 1992).

Adoption and Diffusion of Innovations

As the HFC develops new techniques and technologies in interpretive media, it must communicate about these developments with NPS site personnel as well as the public in order to see them implemented. To this end, research has shown that

there are several characteristics that influence the adoption of innovations (Rogers 1983). These include:

- relative advantage, or the degree to which an innovation is perceived as better than the idea it supersedes,
- compatibility, or the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters,
- complexity, or the degree to which an innovation is perceived as difficult to understand and use,
- trialability, or the degree to which an innovation may be experimented with on a trial basis, and
- observability, or the degree to which the results of an innovation are visible to others.

HFC staff must consider these factors and attitudes when communicating with NPS personnel and the public alike about innovations in interpretive media. Further study of attitudes toward innovations can assist HFC staff in the development and application of new interpretive techniques and technology that are likely to be adopted by the NPS.

The Role of Theory

Few studies of interpretive media have offered explanations of *how or why* various factors influence visitor behavior or response. Reasons for this lack appear to be that few studies approach the subject from a perspective that is grounded in explicit *theory*. Theory is critical to good research. Theory-driven research provides concepts, illustrates the important questions, tests hypotheses, and facilitates the building of a knowledge base (Neuman 1997). Such a knowledge base is needed in the area of interpretive media.

The search for theoretical explanations of interpretive media effectiveness is complicated by the complex nature of learning, attitude change, and behavior change. Commonly used in the research literature, the term *attitude change* refers broadly to a range of actions. For example, attitude change can mean the

development of attitudes, the replacement of naive notions, and/or the adoption of new beliefs and related attitudes. Among the social sciences, social psychology offers several models and theories that might be used to guide future research.

The Attitude-Behavior Link

Recent social psychology (Ajzen 1991, Fishbein and Ajzen 1975, Fishbein and Manfredo 1992) explains the multi-step nature of attitude and behavior:

1. Behavior stems from intentions to behave.
2. Intentions to behave stem from one's attitudes about three things:
 - a) the desirability or undesirability of the consequences of the behavior;
 - b) the perceived social pressure relative to the behavior;
 - c) perceived control over the behavior (does one have what is needed to perform it?).
3. Attitudes and constructs stem from one's beliefs about these three things.

Therefore, to influence behavior, communication must influence behavioral intentions; to influence behavioral intentions, communication must change attitudes, most importantly, those beliefs which are most relevant to the behavior. For interpretive media to influence behavior, the necessary goal appears to be to first understand and influence the specific beliefs of the target audience relevant to the desired behavior (Ham and Krumpal 1996, Pearce 1988). For example, to create a brochure that impacts recycling behavior in parks, one must first understand the beliefs of the target audience regarding recycling. The brochure must then be designed to address those beliefs, in order to influence attitudes, intentions and actual behavior. Generally, it is new beliefs that can be influenced by interpretation (Ham and Krumpal 1996). Further research is needed to test these ideas.

The Knowledge-Attitude Link

Communication through interpretive media can facilitate integration of new information into beliefs which may affect changes in attitudes and conceptions (Knudson et al. 1995). Attitudes can be influenced either by direct experience with the object/issue or by information from other sources. According to information integration theory, the relative believability and perceived weight of new as well as prior information are crucial determinants of attitude (Smith 1982). For example, hearing an audiovisual presentation on the environment narrated by a well-respected expert may be effective at influencing visitors' attitudes toward the environment. Research is needed to test these ideas.

The Attention-Learning Link

While knowledge may well influence attitude, what is the relationship between attention and learning? Attraction and even physical involvement with interpretive media does not necessarily result in mental engagement or learning (Carlson 1995). Attentiveness and attraction to interpretive media are not reliable indicators of learning (Knudsen et al. 1995). Mindful processing, in which one processes information in an active, rather than a rote, inattentive way, is needed for long-term learning to occur (Langer 1989). Perceived control (Ajzen 1991) may influence whether recipients process information in a mindful (attentive) or mindless (inattentive) way (Carlson 1995). For example, visitors who engage with an interactive computer display about the historical significance of a site may well process the information in a more mindful way than they would with a non-interactive exhibit.

More research is needed to test this theory, and to explore the relationships between attraction, perceived control, mindfulness, and learning with interpretive media in museum and park settings. Social psychology offers theory that may help explain why and how interpretive media work and do not work. Other social sciences, such as sociology, communications, and psychology can also provide theoretical bases for research on interpre-

tive media. In order to build a solid knowledge base of on-going use to the HFC, further theoretically-driven research is needed.

7. Summary

What is Known?

Communication theory provides a framework for examining HFC products and services, as well as the factors which foster or impede effective communication with the public. The literature indicates that message content and structure can influence the effectiveness of media communication. The literature describes who is and who is not visiting national parks. It provides an understanding of some of the potential motives for, and barriers to visiting national parks. Social science research has examined the knowledge, conceptions, and attitudes of different groups relative to national parks, land, and nature.

A number of studies have identified media factors which influence visitor attraction, attention, and perception. These factors are precursors to achieving complex goals, such as learning, attitude change, and behavior change. The knowledge of media characteristics that can “make a difference” is available.

Some, but far fewer studies, have documented the influence of interpretive media on visitors’ learning, attitude change, and behavior change. Media have been found to be effective in meeting these goals in some circumstances. Effectiveness varies by media. The research literature also offers guidance for effective evaluation of interpretive media.

Existing social science research sheds light on issues relative to communication between HFC and other units of the NPS, about public attitudes and communication issues relevant to the development and implementation of new techniques and technologies in interpretation, and about the importance of communication. In particular, theory on persuasion and learning illuminates the complex nature of learning, attitude change, and behavior change, offering important ways to think about these goals and how best to achieve them through interpretive media. Existing

social science research offers answers to many questions relative to the needs of HFC.

What is Unknown?

The available literature leaves many questions unanswered, and raises new questions relevant to the HFC. Little is known about visitors' knowledge, conceptions, and attitudes regarding historic furnishings and preservation. Little is known about visitor preferences regarding interpretive media techniques. While a number of visitor motivations have been identified, little is known about the extent to which these motivations vary by background or the relationship between visitor motivations and effectiveness of interpretive media. For those who do not visit the parks, further research is needed on how HFC products and services might help the NPS address perceived barriers and negative attitudes.

While a great deal of research has examined visitors' behavior with interpretive media, as well as factors influencing visitor attraction, attention, and perception, the majority of such studies were conducted with general samples of visitors. Such samples are not likely to include high percentages of elderly visitors or visitors of diverse ethnic background. Further research on specific subpopulations of visitors is needed. What factors influence attraction, attention, and perception with visitors of different backgrounds? What media characteristics are effective across subcultures and with international visitors?

Little is known about the effects of interpretive media on such goals as learning, attitude change, and behavior change. In particular, research is needed which develops and applies theoretical models of these complex processes. Relevant to parks, little is known about the relationships between attraction, attention, and perception, and the goals of learning and attitude change.

Hence, the literature review offers an extensive body of findings, with many important gaps. These gaps represent a research agenda for HFC social science.

IV

Employee and Client Views

A third source of information on HFC social science needs are HFC staff, NPS employees and other clients of HFC services. A formal survey of employees and clients was not conducted. Rather, representative views were sought to add insight in the development of a HFC research agenda. Two group workshops and fifteen telephone interviews were conducted to obtain input from HFC employees and clients of HFC products and services. Participants identified key social science research questions relevant to the HFC. The full results of each workshop are included in Appendix II. A complete list of telephone interviewees is included in Appendix III.

In this section, the procedure and results of the nominal group workshops are presented, followed by the procedure and results of the telephone interviews. A wide range of research questions emerged. The questions revealed several key research topics.

Group Workshop Procedures

An important source for identifying research needs are the HFC staff and clients. Workshops were held at the Mather Training Center, Harpers Ferry, West Virginia on 15 November 1996 and

3 March 1997. The first workshop was conducted for HFC employees, and 17 employees attended. The second workshop was conducted for NPS interpretive personnel, and 15 individuals attended. A list of participants is available from the NPS.

Both workshops were conducted by a moderator and followed the same format. First, the purpose and rationale for developing a social science plan for the HFC were presented. Second, the social sciences represented in the plan were listed (economics, geography, political science, psychology, sociology, and interdisciplinary research), along with examples of potential research questions. Third, participants were guided through three different worksheets in which they generated, selected, and ranked research questions.

On the first worksheet, each participant was asked to respond to the following question: “For the Harpers Ferry Center to more effectively accomplish its mission and responsibilities, what are the most important social science research questions that must be answered?” Each participant wrote a list. Then, participants presented their research questions to the group. The moderator helped clarify each question, and the responses were recorded on flipcharts. Participants were then given a second worksheet which instructed, “From the posted list, please choose the five questions you believe are most important.” The moderator tallied the results of the second worksheet and identified the research questions that were chosen most often by the participants.

Finally, participants were given a third worksheet which asked, “From the final list, please give each question a share of 100 points. The more important you think the question is, the more points it should receive.” The moderator then tallied the results, and a final list of top research questions—with total scores and rank as determined by the group participants—was presented to the group.

Workshop Results: HFC Employees

HFC employees identified, prioritized, and scored the following social science research questions as most important. They are

presented here in rank order, with the total score in parentheses (A complete list of the research questions generated by the group is in Appendix II.):

1. Do HFC products provoke continued learning and/or behavioral change among visitors? (300)
2. What is the demographic profile of NPS visitors? (265)
3. To what degree do NPS managers know what HFC products and services are available to them, and how to access them? (260)
4. What are the most effective media to reach HFC customers? (250)
5. What do NPS managers want from HFC, and what is most important to them? (245)
6. Are some media more effective than others in communicating interpretive messages? (210)
7. Which media are most appropriate for reaching populations not yet reached? (145)

The questions generated by HFC staff revealed several key research topics. Highest on the list is the need to understand the impact of HFC products on visitor learning and behavior. Next is the need to understand the demographic characteristics of national park visitors, the main audience for HFC products. There is a need to understand the knowledge and attitudes of NPS managers regarding HFC products and services. Finally, several questions all concern the effectiveness of interpretive media. For example: Which media reach existing HFC customers? Are some more effective than others? Which media can reach populations not yet reached?

Workshop Results: NPS Interpretive Personnel

NPS interpretive personnel identified, prioritized, and scored the following eight questions, presented here in rank order:

1. What can we do to better reach hostile audiences (for example, given controversial issues like acid rain)? (255)

2. How does HFC design products to bring messages to the widest range of visitor motivations? (245)
3. How can we better understand the meanings and values of National Parks held by the public? (230)
4. Do visitors get a standardized, cookie-cutter (“McDonald’s”) feeling from their experience in National Parks? Is that good or bad? (210)
5. How can HFC gain balanced input from audience, clients, and resource personnel to design more successful visitor experiences? (195)
6. What visitor groups do not feel invited to our parks? (175)
7. What values and expectations do young adults perceive in parks and resources? (150)
8. What is the impact of user fees on the type of visitor? (135)

The eight highest ranked questions generated by NPS interpretive personnel suggest four critical research topics relevant to the HFC. First, the need to understand and reach diverse audiences is reflected in several questions, including the two highest ranked questions. These audiences include “hostile” audiences, those who do not feel invited to our parks, and visitors of different motivations. A second key topic is the need to understand the meanings, values, and attitudes which audiences hold relative to the parks, particularly among the general public and young adults. What do the national parks “mean” to Americans? To young adults? Of particular note, question #4 asks if visitors’ experience of the parks feels “standardized,” and whether or not this is harmful. A third key theme concerned most effective personnel and design strategies: how can the HFC gain input from various sources in order to create more successful visitor experiences? The fourth key topic reflects the need to understand how user fees influence visitor demographics.

Workshop Results: A Comparative Summary

Examined together, the results of the nominal group workshops suggest areas of difference as well as similarities. HFC staff raised the need to understand the impact of HFC products on

visitor learning and behavior, and the need to understand the attitudes and knowledge of NPS employees regarding the HFC. Interpretive personnel raised the need to understand the meanings and values of audiences regarding the parks, and how the HFC might gain input on its projects from various sources. Both groups raised the need to understand how to reach those not currently reached—HFC staff wondered what interpretive media were most effective for doing so, while interpretive personnel were particularly concerned with diverse audiences and those “distant” or even adversarial to the parks. Both groups also shared the need to understand visitor demographic characteristics—HFC staff wished to have demographic profiles, while interpretive personnel questioned how those profiles were influenced by user fees.

Telephone Interviews

A tour of the HFC and discussions with HFC staff at the start of this project revealed five major categories of HFC clients: 1) chiefs of interpretation, 2) park superintendents, 3) Denver Service Center personnel, 4) contractors (who are both clients and service providers), and 5) park professionals with technical assistance requests. To obtain input from each of these groups, a set of fifteen representative clients from diverse geographic locations and sites were interviewed by telephone. A complete list of interview participants is included in Appendix III. All interviews were conducted between 12 May and 29 May 1997 from Indiana University. Interviews averaged 20 minutes in length.

All interviews were conducted by the same researcher and followed the same format. First, the interviewer identified herself, and explained the reason for the call. Second, the rationale for developing a social science plan for the HFC was presented. Third, the interviewee was asked four questions designed to solicit opinions and ideas regarding HFC social science:

- For the HFC to more effectively accomplish its mission and responsibilities, what social science research questions must be answered?

- As you think of issues coming up in the future that might affect the HFC, what additional social science research questions come to mind?
- What kinds of institutions do you think should conduct the research on these questions?
- What format(s) would you favor for the dissemination of research results?

The questions generated by HFC clients revealed several key research topics and preferences. The topics and preferences suggested by each of the five client groups are presented below, along with representative quotes for illustration. This is followed by a comparative summary of common themes across groups.

Interview Results: Chiefs of Interpretation

Five chiefs of interpretation were interviewed. Their responses revealed three key research topics relevant to the HFC. The first topic was the need to understand visitors' opinions and preferences regarding interpretive media. For example, one chief of interpretation asked, "What type of publications do people find beneficial?" Posed another, "Do people really want interactive video, and to what degree?"

A second research topic raised was that of visitor motivations. As one chief of interpretation explained, "What are visitors coming for? There could be people coming for lots of different reasons. We need to understand those reasons in order to communicate with visitors."

A third research topic raised was the need to understand and reach non-visitors. Said one interviewee, "One of the things we've got to begin dealing with is the people who don't come to the park... We've got to begin reaching them."

All five chiefs of interpretation felt that social science research for the HFC was best conducted by a combination of NPS personnel and university personnel. All felt that both perspectives were needed. Said one interviewee, "The social scientists know how to ask and phrase the questions, the park personnel

know what questions need to be asked...Perhaps (the work could be done by) a consortium of universities, with a task force or committee of NPS staffers that would work closely with the university group.”

All five chiefs of interpretation felt that social science research for the HFC should be disseminated in a variety of formats. Almost all favored the combination of a written report and a conference that would enable face-to-face discussion. Said one interviewee, “I think that human interaction is still one of the best ways to communicate”; said another, “Time needs to be spent on examining, discussing, and setting a course for the future.”

Interview Results: Park Superintendents

Three park superintendents were interviewed. Their responses revealed two key research topics. The first topic was the need to understand visitors’ opinions and preferences regarding interpretive media. For example, one superintendent wondered of visitors, “Would they prefer more personal interaction, such as with a ranger, or non-personal interpretation?” Asked another, “Do people want interpretation via web sites?”

A second research topic raised was the need to understand visitors of diverse backgrounds. Said one superintendent, “What of U.S. citizens with a variety of language backgrounds and cultural backgrounds—do we meet their needs?”

All three superintendents felt that social science for the HFC was best conducted by a combination of NPS personnel and university personnel. Said one superintendent, “Obviously NPS needs to be tied in, but the universities...have the expertise.”

All three superintendents felt that social science research for the HFC should be disseminated through a variety of formats, including a conference, web pages, and a video. Most mentioned the value of face-to-face communication in receiving information: said one superintendent, “Some kind of personal forum...Web pages get deleted, paper gets thrown away, but people remember discussions.”

Interview Results: Denver Service Center Personnel

Three Denver Service Center personnel were interviewed. Their responses revealed two key research topics. The first topic was the impact of interpretive media on visitor behavior. Said one interviewee, “How can interpretation encourage people to follow rules? To stay on trails for example?” Said another, “What will visitors do differently after their visit?”

A second research topic raised was the need to understand the public’s values regarding parks and cultural resources. Said one interviewee, “What are peoples’ values that they hold about parks?” Said another, “What do visitors get out of the interaction with cultural resources?”

All three Denver Service Center personnel felt that social science for the HFC was best conducted by a combination of NPS personnel and university personnel. Said one interviewee, “We need university expertise...But we need them to work with Park Service folks...it is important that the research meet Park Service needs, as well as university standards.”

All three Denver Service Center personnel felt that social science for the HFC should be disseminated in format(s) that are “user-friendly” and “straightforward.” Said one interviewee, “It’s always useful to read about the study, but I don’t think most people want to look at that level of detail...It’s probably more critical to have an expanded executive summary with illustrations about how it can be used.”

Interview Results: Contractors

Two exhibit design and production companies that have worked with the HFC on a contract basis were interviewed. Their responses revealed one key research topic. That topic was the need to evaluate the effectiveness of interpretive media. Said one interviewee, “I don’t think there are means in place to tell...what portion of people are getting the interpretive messages.” Said another of interpretive media, “What’s working, and why?”

Both contractors felt that social science research for the HFC was best conducted by a combination of NPS personnel and

university personnel. Said one interviewee: “It’s a matter of who can capture the objective data. Probably a combination is best.”

Both contractors felt that social science for the HFC should be disseminated in written formats. One preferred “a very well written piece...with a direct approach,” while the other suggested “publishing on the internet so that it’s updatable and retrievable and accessible.”

Interview Results: Technical Assistance Requests

Two individuals who have received technical assistance from the HFC were interviewed. Their responses revealed one key research topic. That topic was the need to assess the public’s understanding of the preservation of cultural artifacts and resources. Said one interviewee, “What does the public know and understand about what’s involved in preservation?” Said the other, “Do people know how these things are done?”

Both interviewees felt that social science for the HFC should be conducted by a combination of NPS personnel and university personnel. Said one interviewee, “The NPS knows their audience better than the university, but the university knows better what they need. It has to be hand in hand.”

Both technical assistance requesters felt that social science research for the HFC should be disseminated in written formats. Both mentioned web sites and brochures.

Interview Results: A Comparative Summary

The results of the fifteen interviews provide eight social science research topics relevant to the HFC:

- visitors’ opinions and preferences regarding interpretive media,
- visitor motivations,
- understanding non-visitors,
- understanding visitors of diverse backgrounds,
- the impact of interpretive media on visitor behavior,

- the public's values regarding parks and cultural resources,
- evaluating the effectiveness of interpretive media, and
- the public's understanding of cultural artifact preservation.

Only one of these topics was suggested by more than one client group. The topic of visitors' opinions and preferences regarding interpretive media was suggested by both park chiefs of interpretation and park superintendents. However, the eight social science research topics further reflect three broad themes across groups, as described below.

First, the topics reflect the broad need to *better understand current national park visitors*. This theme was suggested by the research topic of understanding visitors of diverse backgrounds, raised by the park superintendents; by the topic of visitor motivations, raised by the chiefs of interpretation; and by the topic of visitors' opinions and preferences regarding interpretive media, raised by both park superintendents and chiefs of interpretation.

Secondly, the topics reflect the broad need to *better understand the public at large*. This theme was suggested by the research topic of understanding non-visitors, raised by the chiefs of interpretation; by the topic of the public's values regarding parks and cultural resources, raised by the Denver Service Center personnel; and by the topic of the public's understanding of cultural artifact preservation, raised by the technical assistance individuals.

Third, the fifteen topics reflect the broad need to *better understand the effectiveness of HFC products that support interpretation in the parks*. This theme was suggested by the research topic of the impact of interpretation on visitor behavior, raised by the Denver Service Center personnel; and by the topic of evaluating the communicative effectiveness of interpretive media, raised by the contractors.

All fifteen interviewees felt that social science research for the HFC was best conducted by a combination of NPS personnel and university personnel. Most interviewees preferred that the dissemination of findings of such research through a variety of

formats, particularly written reports, conferences or workshops, web sites, and brochures. Interviewees noted that dissemination efforts should be user-friendly and accessible, and that an opportunity to meet and discuss findings with others was important and valuable.

The nominal group workshops and telephone interviews developed a significant and extensive set of social science research questions relevant to the HFC. Three broad themes emerged, including the need to: 1) better understand current park visitors (including their backgrounds, motivations, and interpretive media opinions and preferences), 2) better understand the public at large (including non-visitors and their values), and 3) better understand the effectiveness of interpretive media.

V

A Research Agenda

In this chapter, a social science research agenda for the HFC is proposed. It is based on the policy analysis, literature review and public workshops described in the previous chapters. It is organized around a series of specific research projects. These research projects are organized into three categories.

The first kind of research project involves descriptive research. These projects are intended to describe current and future clients and audiences of the HFC, to describe the general public (including non-visitors) and their opinions related to the National Park System and HFC products, and to describe current social science research and its application to HFC needs. A central focus to this research is the question, *“What do current and future HFC clients and audiences need?”*

The second kind of research project involves practical experiments. These projects are intended to answer specific questions—about what media/products work, why certain media work (or do not), and what impact HFC products have upon public knowledge, attitudes, behavior and enjoyment. A central focus to

this research is the question, *“What are the most effective ways of meeting the needs of current and future HFC clients and audiences?”*

A third kind of research project involves formal evaluation. These projects are intended to design, develop and conduct formal evaluations of HFC products and services. These evaluations are linked to HFC performance, and focus on the question, *“How effective are HFC products and services in meeting the identified needs of current and future HFC clients and audiences?”*

All three of these research categories are important to the HFC mission. With limited resources, the HFC efforts should focus on servicewide needs (rather than region or cluster-based studies). Figure 1 presents a conceptual model for HFC social science, and illustrates the need for descriptive research and experimental studies to assist in the design and development of HFC products. The development and production of HFC products and services is followed by the formal field evaluations conducted as an additional and integrated component of the research program. The conducted research has direct application and leads to adaptive management—e.g., new approaches to accomplishing objectives—by the HFC. The use of the research provides feedback to create learning by HFC staff, and if needed, new science needs.

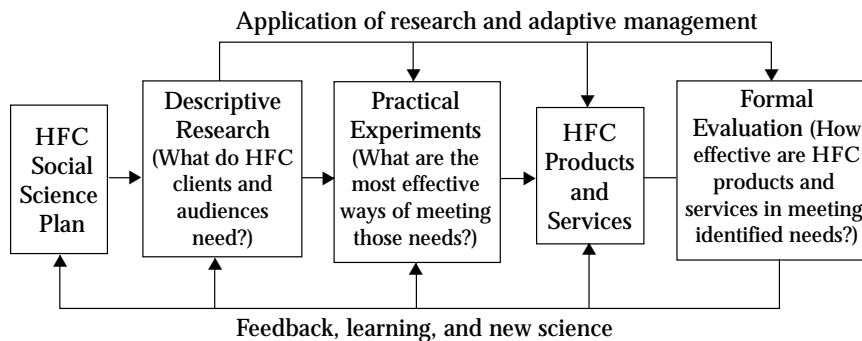


Figure 1. A Conceptual Model for HFC Social Science

Hence, the research agenda consists of a set of interdependent studies that involve descriptive research, practical experiments, and formal evaluation. Each are discussed below. For each

project, an objective, general description, estimated budget, schedule and potential funding partners are described.

Descriptive Research

General Public Survey

The American public represents the major potential audience for HFC products (international tourists are another, and dealt with in a different project). The American public is experiencing significant shifts in age, ethnic composition, economic class and cultural values. If HFC products are going to fulfill the communication model described in Chapter 3, HFC staff need to have an accurate understanding of American public opinion, attitudes, values and behavior.

A general public survey is proposed. It should be constructed to provide data on:

- the general population,
- the portion of the public that visits the National Park System,
- subpopulations within the public that visits the National Park System (such as seniors or local residents), and
- subpopulations within the public that do not visit the National Park System (such as the urban poor).

The survey should provide the HFC staff with specific information, such as:

- a profile of visitors that use HFC products,
- a profile of visitors and the general public that does not use HFC products,
- a description of the source credibility, content, interpretive approaches, and media preferred by visitors and the general public, and
- a comparison of how visitor subpopulations differ in their preferences and needs.

The results of this general public survey are critical to:

- documenting visitor needs and preferences for HFC products,

- selecting, designing, producing and evaluating appropriate products,
- identifying possible approaches to developing HFC products for specific subpopulations and non-visitors and the general public,
- identifying the role of HFC products in the visitor experience, and
- creating a baseline of data to monitor changes in public opinions, attitudes, values and behaviors.

The project could be implemented as a research partnership with the NPS Social Science Program and other units of the NPS, for such a general survey has value to the NPS beyond assisting the HFC. The HFC should serve as a major partner in the project; HFC staff should be significantly involved in survey design. The research should be conducted by an independent university (public or private) or a nationally-recognized polling firm. The survey instrument should undergo careful review by social scientists and HFC staff. The survey should be repeated every three years.

Approximate Cost: (HFC share of total cost) \$15,000

Duration: 12 months

VSP Database Analysis

Since 1988, the Visitor Services Project has conducted studies in over 80 units of the National Park System. Data from these individual studies have been compiled into a comprehensive database with over 40,000 records. A significant portion of the data is relevant to HFC needs, yet has not been systematically analyzed. A detailed database analysis is proposed. The analysis should use the database to:

- document visitor use and evaluation of various interpretive media,
- compare the use and evaluation patterns of visitor subpopulations,

- identify trends in visitors that do not use or evaluate poorly interpretive media, and
- identify visitor preferences and needs for interpretive media.

The analysis should be applied to:

- improve the selection, planning, design, production and evaluation of HFC products,
- identify ways HFC products can reach visitors currently not using interpretive media,
- creating benchmarks or standards for formal evaluations of HFC products and services, and
- monitoring change in visitor opinions, attitudes and behaviors relevant to HFC products.

The project could be implemented in partnership with the Visitor Services Project and the Division of Interpretation. The HFC should be a major partner in the project, and HFC staff should provide guidance to the researchers examining the database. The work should be conducted by a university (public or private) and is appropriate for a graduate student under faculty supervision. The project need not be carried out by VSP staff. The VSP should provide the database to both the researchers and the HFC in electronic form.

Approximate Cost (HFC share of total cost): \$8,000

Duration: 6 months

Augmented VSP Studies

Each year, the Visitor Services Project conducts a detailed visitor study in 10 units of the National Park System. While there is a core of questions dealing with visitor demographics, park staffs are free to choose additional questions. Many but not all park staffs choose some questions related to interpretive services and HFC products (hence, the VSP database can be useful to the HFC, as described above).

Additional use of VSP studies as a way of gaining critical information for HFC needs can be timely and cost-effective. An

“augmentation” of VSP studies is proposed. In this effort, the HFC would offer directly to parks conducting VSP studies funding assistance in exchange for the opportunity to include HFC-related questions on the park surveys. Data from these augmented VSP studies should be used to:

- document visitor use and evaluation of various interpretive media,
- compare the use and evaluation of HFC products in different parks,
- compare the use and evaluation patterns of visitor subpopulations, and
- identify visitor preferences and needs for interpretive media.

The analysis should be applied to:

- improve the selection, planning, design, production and evaluation of HFC products,
- identify existing HFC products that are successful or in need of improvement,
- document performance for formal evaluations linked to GPRA and the NPS Strategic Plan, and
- monitor change in visitor opinions, attitudes and behaviors relevant to HFC products.

The project should be implemented as a partnership with the Visitor Services Project. The HFC should have a member on the VSP Advisory Committee, which helps guide the VSP and selects the parks to be studied each year. For up to 5 parks per year, \$3,000 assistance should be made available. Funding assistance should go directly to the participating parks, or if necessary, to the VSP as identified for assistance to a specific park.

Approximate Cost (HFC share of total cost): \$15,000 per year for two years

Duration: 12 months

Special Needs Studies

As the policy analysis, literature review and interviews demonstrated, there is a significant need to ensure that HFC products are effective in reaching the full diversity of NPS visitors and the general public. While general studies of visitors (such as the VSP described above) are useful, their reliance on probability sampling makes it difficult to gain detailed knowledge about subpopulations not well-represented in the general population studied. Of particular importance is an understanding of:

- seniors that use the National Park System,
- children in school (linked to the Parks as Classrooms program),
- American subcultures and ethnic groups, particularly Hispanic Americans, African Americans, and the urban and rural poor,
- local residents in gateway communities,
- visitors that rely on the tour industry to visit national parks,
- international tourists that visit national parks, and
- citizens that do not use nor support national parks.

An accurate understanding of special subpopulations with potentially different or unique needs requires specific research efforts. A series of Special Needs Studies is proposed. The purpose of these studies is to:

- identify special populations that are current or potential audiences for HFC products,
- describe these special populations with specific attention to their opinions, attitudes and behaviors relevant to national parks and HFC products,
- identify potential techniques for improving the effectiveness of existing HFC products in reaching these populations, and
- identify potential techniques for reaching these populations with new and future HFC products.

The results should be applied by the HFC to:

- improve the selection, design, production and evaluation of HFC products,
- identify existing HFC products that are successful or in need of improvement in reaching these special populations,
- develop, if needed, new and targeted HFC products, and
- monitor change in visitor opinions, attitudes and behaviors relevant to HFC products.

Each of these studies should be independently designed, and use a variety of social science research methods, from quantitative surveys to qualitative field methods such as participant observation or ethnographic analysis. The HFC should identify which special populations are highest priority, and support those studies first. Approximately three studies should be conducted during the next three years; each has the approximate cost of \$15,000. The Division of Interpretation may wish to be a partner in such studies, as the results will have considerable value to interpretation and interpretive training. The work should be conducted by universities (public or private), and is appropriate for a graduate student under faculty supervision.

Approximate Cost: \$15,000 per year for three years

Duration (each separate study): 18 months

New Research Synthesis

As the literature review illustrates, there is a continually growing body of social science research related to communication, and much of this research has potential usefulness to the HFC.

Converting research done for other organizations or purposes to usable knowledge for the HFC is both timely and cost-effective. A new research synthesis is proposed. Each year, a contracted researcher would review, summarize and apply current developments in communication research to HFC needs. The synthesis would result in both a written document and small annual workshop. Unlike academic and professional meetings (such as the Visitor Studies Association's annual meeting), the focus

would be on transferring new knowledge to HFC staff quickly and inexpensively.

The synthesis should be applied to:

- improve the selection, design, production and evaluation of HFC products,
- identify new opportunities for HFC products and services, and
- enrich the professional development of HFC staff.

The Division of Interpretation and the Mather Training Center may wish to be partners in this effort. The work should be conducted by a university (public or private), and a three year project should be implemented.

Approximate Cost (HFC share of the total cost): \$6,000 per year for two years

Duration: 6 months

Information and Technology Transfer through Training

If social science research is to be useful to HFC staff, it needs to be delivered in effective ways and at frequent intervals. Many of the interviews identified the need for training, both formal and informal. A modest training program is proposed. The Mather Training Center may wish to be a partner in this effort. The purpose of the training program is to:

- ensure that HFC social science is converted into usable knowledge by HFC staff,
- provide HFC staff with professional development opportunities, and
- assist HFC staff in the development of new and improved HFC products and services.

A series of three half-day training workshops should be provided throughout the year, and for three years. These workshops should be conducted and coordinated by the HFC social science consortium and its project leader. The workshops should focus on specific topics, such as:

- new technologies and their potentials for HFC,
- current trends in visitor use of national parks,
- techniques for formal evaluation, and
- special populations.

The workshops should be carefully evaluated by HFC staff.

Approximate Cost: \$1,000 per year for two years

Duration: 12 months

Practical Experiments

Current Media Test Series

As described in the policy analysis and interviews, the HFC has a critical need to test the effectiveness of the interpretive media that it employs. Such tests are important to:

- improve the selection, design, production and evaluation of HFC products,
- evaluate the effectiveness of current media in achieving HFC and NPS objectives,
- satisfy GPRA and NPS Strategic Plan requirements, and
- maintain national and international leadership in interpretive media development.

A series of media tests is proposed. The effectiveness of current and common media should be tested. Such media include:

- brochures,
- video and film,
- maps,
- exhibits, and
- signs.

These tests should be organized as practical field experiments, with careful experimental designs that will allow strong inferences as to the comparable effectiveness of current media. HFC staff (particularly media specialists) should be significantly

involved in study design and planning. The tests should be interdependent and conducted at several NPS sites and situations. Effectiveness should be measured in terms of visitor learning, changes in visitor attitudes and behavior, level of visitor enjoyment, as well as other measures. Each test (involving several current media) should cost approximately \$15,000. At least two tests should be conducted.

The tests should be conducted by universities (public or private), and are appropriate as graduate student projects under faculty supervision. The Division of Interpretation may wish to be a partner in these projects.

Approximate Cost: \$30,000

Duration: 18 months per test

New Media Test Series

As described in the policy analysis and interviews, the HFC has a critical need to test the effectiveness of new and emerging technology and interpretive media. Such tests are important to:

- improve the selection, planning, design, production and evaluation of HFC products,
- evaluate the potential effectiveness of new media and technology in achieving HFC and NPS objectives,
- guide HFC investment in research and development of new technology and media, and
- maintain national and international leadership in interpretive media development.

A series of media tests is proposed. The effectiveness of new and emerging media should be tested. Such media include:

- interactive computers,
- web sites, and
- cutting-edge technologies, such as virtual reality systems, high-definition television, and new combinations of existing media.

These tests should be organized as practical field experiments, with careful experimental designs that will allow strong inferences as to the comparable effectiveness of new and emerging media. HFC staff (particularly media specialists) should be significantly involved in study designs and planning. The tests should be treated as pilot efforts, and conducted at a limited number of NPS sites. Effectiveness should be measured in terms of visitor learning, changes in visitor attitudes and behavior, level of visitor enjoyment, as well as other measures. Each test (involving a single new emerging media) should cost approximately \$15,000. At least two tests should be conducted.

The tests should be conducted by universities (public or private), and are appropriate as graduate student projects under faculty supervision. The Division of Interpretation may wish to be a partner in these projects.

Approximate Cost: \$30,000

Duration: 18 months per test

Interpretive Impact Study

The current and new media tests described above are important to HFC development of effective products. By focusing on individual media, they can provide specific and practical guidance to the HFC. However, the impact of each of these media upon visitors and the public is not independent—visitors receive brochures, read maps, view exhibits and film, and participate in a wide range of interpretive programs. The synergistic and overall impact of the “interpretive experience” provided to visitors is both important and in need of study.

An interpretive impact study is proposed. This project would carefully document the impact of the interpretive experience provided at several sample NPS sites. Selection of the test sites would be based on choosing a relatively common mix of interpretive media and opportunities. HFC staff (particularly media specialists) should be significantly involved in study design and planning. Impact would be measured in terms of changes in visitor knowledge, attitudes and behavior. Results of the study would be used to:

- improve the selection, design, production and evaluation of HFC products,
- evaluate the effectiveness of current interpretive experiences in achieving HFC and NPS objectives,
- guide the HFC and Division of Interpretation in creating effective combinations of interpretive media and program to achieve NPS objectives, and
- satisfy GPRA and NPS Strategic Plan requirements.

The work should be conducted by a university (public or private). The Division of Interpretation may wish to be a partner in this project.

Approximate Cost: \$25,000

Duration: 18 months

HFC Formal Evaluation

Research and Development on Alternative Evaluation Approaches

The policy analysis and interviews revealed an HFC mandate and responsibility for evaluating its products and services. In particular, GPRA, the NPS Strategic Plan and other government initiatives (such as the National Performance Review) have created a need for cost-effective, accurate, useful and understandable forms of evaluation. The develop of evaluation approaches useful to the HFC requires a research and development effort.

A project of research and development on alternative evaluation approaches is proposed. It should be focused on providing HFC staff with carefully designed and appropriate evaluation tools. Several different evaluation criteria should be examined, including:

- audience learning,
- public opinion, attitude or values change,
- change in visitor behavior,
- audience enjoyment, and
- client satisfaction with products and services.

Different evaluation methods should be examined, from formal surveys of visitors, the public, and HFC clients to more informal focus groups, observation and other techniques. The work should be conducted by a university (public or private), and HFC staff should work closely with the research team. The results should be used to provide HFC staff and NPS managers with a set of evaluation tools most appropriate and practical for use in the field.

Approximate Cost: \$12,000

Duration: 6 months

GPRA-based Evaluation

The policy review makes clear that the responsibility for formal evaluation of HFC products and services will increase in scope, intensity and frequency over the next 3 years. The HFC will require formal evaluations, done in timely and cost-effective ways that yield useful results. Such evaluations should be based on the research and development project described above, and include evaluation by:

- visitors that use HFC products,
- NPS managers that use HFC products and services, and
- suppliers, partners and other clients of the HFC.

The evaluations should be conducted by a university (public or private), and HFC should work closely with the evaluation team. The results should satisfy GPRA requirements, other policy requirements, and be useful to HFC staff improving the selection, design, and production of HFC products.

Approximate Cost: \$7,500 per year for two years

Duration: 9 months

Employee Feedback System

The interviews revealed a strong interest and value in encouraging employee involvement in HFC planning, organization and operations. Employees are motivated to provide constructive feedback on such issues as:

- improvements to HFC products and services,
- improvements to HFC organization and procedures,
- workplace morale, and
- HFC mission and alternative futures.

An employee feedback system is proposed. The feedback system should be inexpensive, practical to implement, and result in constructive opportunities for employee involvement. The feedback system should be developed by a university (public or private) or a consulting firm with experience in such employee systems. The system should be put in place for three years, and managed internally by HFC staff.

Approximate Cost: \$3,000

Duration: 6 months

VI

An Action Plan

Implementing a social science research program for the HFC will require several specific actions. Not all actions can or should be accomplished immediately; a long-term action plan should be formally approved and implemented. Research activities can be accomplished in four stages, described below. While each stage could be accomplished within a one-year period, the HFC may wish to extend the length of a particular stage due to limited budgets, resources or staff. The HFC should select researchers and university partners through open, competitive bidding processes. There are several reasons:

- the need for a wide range of research skills available at universities,
- access to graduate students, who can assist on research projects at low cost,
- the independence and objectivity of university research, particularly on issues of evaluation, and
- an expanded constituency for HFC activities.

An estimated budget is provided at the end of this chapter.

Stage 1. Organizing for Social Science

1.1 *A social science coordinator for the HFC should be appointed from existing staff. Initially, this is .20 FTE assignment. The coordinator's responsibilities should include:*

- coordinating HFC social science activities including, contracting, technical assistance, peer review, archiving, training and application of research results,
- serving as HFC representative for HFC partnership activities related to social science,
- ensuring that HFC staff are significantly involved in all stages of the research projects, from study design to final reports,
- serving as liaison with the NPS Social Science Program, and
- implementing this HFC social science plan.

Training and assistance from the NPS Social Science program should be sought.

1.2 *A social science consortium of universities should be established for the HFC, and a .25 FTE social scientist from a cooperating university should be contracted to serve as project leader for the consortium. Under the new Social Science Program being developed by the NPS, a system of "virtual research organizations" is being created to serve the needs of NPS units. Each of these consortiums will have a host university, partner universities, a mission statement, four-year plan and NPS managers committee. The mission of the HFC consortium should include research, technical assistance and education (including both information transfer and training) related to the HFC.*

More specifically, the HFC social science consortium should:

- provide research capabilities for conducting the research projects proposed in this plan,
- ensure that HFC staff are significantly involved in all stages of research projects,
- offer technical training in the social sciences for HFC employees,

- provide technical assistance to the HFC on issues related to social science, and
- develop and maintain an archive of social science research results, reports and databases for use by HFC managers and other NPS professionals.

The .25 FTE social scientist should:

- coordinate the activities of the HFC social science consortium,
- serve as liaison between the consortium's universities and the NPS,
- conduct portions of the research projects and assist in other portions as needed, and
- provide technical assistance and training to the HFC.

Existing cooperative agreements with universities could be integrated into the HFC social science consortium. The host university and project leader should be selected through open competitive bidding. Technical assistance in the RFP, proposal evaluation and selection process should be sought from the NPS Social Science Program. The NPS Chief Social Scientist should provide significant assistance to the HFC in establishing the consortium, at HFC request.

Stage 2. Building a Research Base

2.1 The VSP Database Analysis should be initiated. Because the data for this analysis already exists in an organized database, this project can provide the HFC with an initial analysis of visitor attitudes and behavior toward current HFC products. The project could be contracted with the VSP, as the staff of the VSP have easy access and intensive background in the data. Alternatively, the project could be contracted through the HFC social science consortium.

2.2 The Augmented VSP Studies should be initiated. VSP studies currently under development and planned for upcoming years represent an important opportunity for the HFC to gain useful visitor information at very low cost. The augmentation of up to

five VSP studies should be undertaken as soon as possible, and the HFC should make funds available directly to park superintendents for this purpose.

2.3 The General Public Survey should be initiated. The need for comprehensive data on the general public (including visitors, non-visitors and special populations) makes the General Public Survey a critical element in building a social science research base for the HFC. The survey should be conducted in partnership with the NPS Social Science Program, and funding can and should be sought from the National Park Foundation.

2.4 The Research and Development on Alternative Evaluation Strategies should be initiated. Because formal evaluation of HFC products and services is both mandated by GPRA and valuable to HFC activities, the design of alternative evaluation tools should be implemented early in the HFC social science program. The project should be contracted through the HFC social science consortium.

2.5 The GPRA Measurement Program should be initiated. Based upon the research and development of alternative strategies for evaluation, the HFC should implement its GPRA-based performance measurement. Work should be coordinated with the NPS Strategic Planning Office, the NPS Social Science Program, and the Division of Interpretation. The work should be contracted through the HFC social science consortium.

2.6 The HFC Employee Feedback System should be initiated. By putting the formal employee feedback system in place at the beginning of the research program, HFC employees will have an early opportunity to use social science methods, offer advice and opinions on HFC mission, organization and procedures, and create a baseline of information to monitor changes in employee attitudes and opinions.

Stage 3. Diversifying the Research

3.1 The HFC social science consortium should be expanded to include additional partner institutions. As the research program progresses, additional partners with specialized capabilities (such as media

laboratories, experience with special populations, and so forth) may need to be included through new cooperative agreements.

3.2 *The HFC social science coordinator (.20 FTE) and the consortium project leader (.25 FTE) should continue to provide coordination and direction to the research program. The project leader should initiate activities to increase the research base of the program, and provide usable knowledge to HFC staff. The new research synthesis should be initiated and the first workshop conducted. The information and technology transfer through training should be initiated, and training sessions developed and conducted. Other activities might include:*

- encouragement and support of student theses on HFC research topics,
- coordination of HFC research and the NPS Social Science Program, including use of the NPS Social Science Web site (now under construction), and
- regular briefings for HFC managers and staff.

3.3 *The Special Needs Studies should be initiated. These detailed studies of special populations will build upon earlier descriptive efforts, and should provide specific and detailed information about special populations useful to the HFC. HFC staff, working with the consortium project leader, should select special populations to be studied first. The work should be contracted through the HFC social science consortium.*

3.4 *The Current and New Media Test Series should be initiated. These studies would be the first set of practical experiments supported by the HFC under this plan. The tests would provide specific and detailed information on the relative effectiveness of various interpretive media used by HFC. While independent, the current and new media tests could be initiated simultaneously, and should be contracted through the HFC social science consortium.*

Stage 4. Completing the Research Program

4.1 *All of the research projects described above should be completed, and the new research synthesis and information and technology transfer*

should be continued. The HFC liaison should ensure that all reports, databases and other materials are properly archived for future use. Briefings, workshops and informal discussions should be conducted to ensure the conversion of research results into usable knowledge for HFC staff.

4.2 *The Interpretive Impact Study should be initiated.* The new and current media tests to be completed in Stage 3 will provide critical information on the effectiveness of specific interpretive media. Based on these independent studies, the Interpretive Impact Study will focus on the comprehensive impact of the visitor's "interpretive experience." The project should be coordinated with the Division of Interpretation and the NPS Social Science Program, and additional funding sought from the National Park Foundation. The study should be contracted through the HFC social science consortium.

4.3 *The HFC social science consortium should complete its development, and fully diversify its research, technical assistance and training program for the HFC.* The new research synthesis workshops should be continued. Training workshops related to completed research projects should be conducted for NPS managers and staff.

4.4 *The HFC social science program should undergo a careful evaluation.* The evaluation should be conducted by the HFC consortium's managers committee, along with the NPS Social Science Program. The review group should include HFC staff, NPS managers and external social scientists. The review should focus on identifying accomplishments during Stages 1-3, weaknesses and problems in the program, and constructive recommendations for improvement.

4.5 *Based on a favorable review, the HFC social science program should be extended.* The cooperative agreements should be renewed, and a new research agenda should be prepared, focusing on emerging problems that require social science. In some cases, research projects should be revised and repeated (particularly the VSP Database Analysis and the General Population Survey).

Table 3. HFC Social Science Program

Estimated Budget

Task	Estimated Costs (In Thousands)
Stage 1. Organizing for Science	
1.1 Appoint HFC social science coordinator (.20 FTE)	0
1.2 Establish HFC social science consortium	4
1.3 Contract project leader (.25 FTE, 1 year)	15
Subtotal	19
Stage 2. Building a Research Database	
2.1 VSP database analysis	8
2.2 Augmented VSP studies (2 years)	30
2.3 General public survey	15
2.4 Research and development on alternative evaluation approaches	12
2.5 GPRA based evaluation (2 years)	15
2.6 HFC employee feedback system	3
Subtotal	83
3. Diversifying the Research	
3.1 Expand HFC social science consortium	0
3.2 Continue HFC liaison and consortium project leader (1 year)	15
3.3 New research synthesis (2 years)	12
3.4 Tech transfer training (2 years)	2
3.5 Special needs studies	45
3.6 Current and new media test series	60
Subtotal	134
Stage 4. Completing the Research Program	
4.1 Complete contracted research projects	0
4.2 Interpretive impact study	25
4.3 Continue HFC consortium, HFC liaison & consortium project leader (1 year)	15
4.4 External evaluation of HFC social science program	3
Subtotal	43
TOTAL	279

Appendices

Appendix I. Bibliography

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Appendix II. Nominal Group Workshop Results

Two nominal group workshops were conducted to obtain input from HFC employees and clients about social science research needs for the HFC. The nominal group process resulted in the selection and ranking of 7-8 top research questions for each workshop. The purpose of this appendix is to present all of the social science research questions that were generated at these workshops.

Workshop participants identified many important social science research questions. Some questions were mentioned in both workshops. The following lists include all questions raised at the workshops. In some cases, they have been edited for conciseness.

Harpers Ferry Center Employee Nominal Group Workshop Friday, 15 November 1996

1. Who is giving HFC the most feedback about its services?
2. What proportion of the visitor population uses each of the different media?
3. What's the most important thing or idea that visitors want to take away?
4. Does park staff review of HFC products accurately reflect visitor views?
5. Do HFC interpretation products lessen the negative impacts of visitors on resources?
6. What are the goals of visitors vis-a-vis interpretation at pre-visit, during a visit, and post-visit?
7. What is the average age of park visitors?
8. What is the most effective media to reach HFC customers?
9. Who are the HFC and NPS customers?
10. How much do visitors enjoy interacting with original objects verses different media, and do they prefer one over the other?
11. What do NPS managers want from HFC, and what is most important to them?
12. Are HFC products effectively communicating safety information (and perhaps additional visitor information)?

13. Are the staff talents at HFC most appropriately and effectively being utilized?
14. What do international visitors want, and how can NPS better provide it?
15. Which media are most appropriate for reaching populations not yet reached?
16. Do visitors perceive an effective relationship between indoor media and its contents, and park resources?
17. Do HFC products have a differential impact upon various audiences? (e.g., rural vs. urban, historical vs. national)
18. What methods can HFC use to get effective feedback from its direct customers (e.g., superintendents)?
19. Do HFC products successfully link the individual park site to the wider world and visitors' individual lives?
20. Do HFC products provoke continued learning and/or behavioral change among visitors?
21. What's the most appropriate mix of HFC media? Does this mix vary by kind of site and location?
22. To what extent should HFC products address cognitive learners and/or intuitive learners?
23. Is the NPS ready to explore using virtual reality technology in order to control impact on resources?
24. Are HFC products worth the financial cost?
25. To what degree do NPS managers know what HFC products and services are available them, and how to access them?
26. What does HFC need to do to maintain its leadership internationally (philosophical, technical innovations) in interpretive media development?
27. What are the educational levels of visitors that use HFC products (by media)?
28. Does the location of HFC affect frequency of NPS requests for service?
29. How have fees altered visitor profiles, and is there an impact upon HFC?
30. What specific techniques can HFC use to ensure "Tildensque" interpretation?

31. To what extent do HFC media effectively fulfill interpretative media planning goals?
32. Do NPS sites consider HFC an expensive middle person, or an important link to acquiring quality products?
33. Given new options in place, how inclined are parks to come to HFC for service?
34. Are some media more effective than others in communicating interpretive messages (in general, as well as specific sense)?
35. To what extent are resource changes understood as interpretive messages by a broad range of HFC customers (NPS managers, visitors, etc.)?
36. To what degree do customers (direct and indirect) recognize the quality and value of HFC products?
37. Are visitors' values affected by HFC interpretation?
38. Are the pedagogical techniques used in HFC interpretation effective?
39. What is the demographic profile of NPS visitors?
40. What is the public's perception of the NPS mission, and how can HFC contribute its communication?
41. How can the HFC develop innovative media to research new audiences?
42. How much is the HFC seen as a leader among NPS managers in the delivery of services?
43. How would college recreation students improve media in the National Parks?
44. How best can HFC present rapidly changing information?
45. How do visitors compare visitor center experiences with urban museum experiences?
46. How computer-literate is the American people, what access do they have to computers, and what are the implications for HFC?
47. Where and how should visitor orientation and interpretation overlap?
48. How do direct customers rate HFC products and services, will they continue use HFC services, and why?
49. What specific techniques can HFC use to raise awareness of the HFC among direct customers?
50. Do visiting parents want to see more children's interpretation?

***National Park Service Interpretive Personnel Nominal Group Workshop
Monday, 3 March 1997***

1. How can HFC best evaluate visitor reactions (outcomes) to interpretive media?
2. What can HFC do to influence interpretive media with respect to critical resource issues?
3. How do changing demographics (ethnicity) affect how people view resources?
4. What's the time line for the production of a new park brochure?
5. What role should the public have in interpretive planning?
6. Why do so many visitors avoid NPS interpretive media?
7. Do visitors find meanings in interpretive media, and what kinds of meanings do they find?
8. What types of products and services demonstrate "timelessness" to a wide audience?
9. Is there accountability to bring HFC projects to completion?
10. What level of influence does the location of a park play in planning?
11. Do visitors get a standardized cookie-cutter ("McDonalds") feeling from their experience in National Parks? Is that good or bad?
12. How are changing recreation practices influencing land conservation?
13. How does HFC design products to bring messages to the widest range of visitor motivations?
14. How has change in family structure influenced park use/activities?
15. What is the impact of user fees on the type of visitors?
16. How can HFC take leadership in presenting controversial public history issues?
17. How can we better understand the meanings and values of National Parks held by the public?
18. How are we keeping pace with computer technology in exhibits?
19. How does peoples' experience with computers influence their experience with traditional exhibits?

20. Who/what determines the priority for HFC jobs?
21. How can HFC help parks reach people who don't visit the parks?
22. How does media contribute/detract from visitor experiences?
23. How does the HFC/contractor/client relationship affect the interpretive product?
24. What target audiences need to be reached for specific critical resource topics, how?
25. How do various visitors learn most efficiently?
26. How much do elected officials affect the priority setting of HFC projects?
27. How do economic partnerships in parks affect the content of interpretive media?
28. How effective are HFC media in meeting their stated outcomes?
29. What values and expectations do young adults perceive in parks and resources?
30. How do society's ills affect visitor experiences?
31. How can HFC include regional cultural differences in their exhibits?
32. How can HFC gain balanced input from audience, clients, and resource personnel to design more successful visitor experiences?
33. Does park vandalism vary relative to part of the country or type of park location (city, rural, etc.)?
34. How many visitors, and who, are not satisfied with the depth and sophistication of interpretive media?
35. What can we do to better reach hostile audiences (e.g., given controversial issues like acid rain)?
36. How can HFC affect the behavior of park staff in producing their own media?
37. How can interpretive media be judged accurately?
38. Why are visitors so attached to the full color brochure?
39. How does reorganization affect the ability of HFC to accomplish its mission?
40. How do entry experiences of facilities influence visitor perceptions and expectations of a park and resources?

41. Is HFC setting realistic work goals given their staff/work loads?
42. How does people's view of federal land ownership affect their visitor experience?
43. What visitor groups do not feel invited to our parks?
44. What factors motivate a spontaneous decision to visit a park?
45. How are parks prepared for changing age demographics?

Appendix III. Telephone Interview Participants

A tour of the HFC and discussions with HFC staff at the start of this project revealed five major categories of HFC clients, namely 1) chiefs of interpretation, 2) park superintendents, 3) Denver Service Center personnel, 4) contractors, and 5) technical assistance requests. To obtain input from each of these groups, a set of fifteen representative clients from diverse geographic locations and sites were interviewed by telephone. The purpose of this appendix is present the names and affiliations of the fifteen telephone interview participants. Interviewees' names are presented in alphabetical order within each category.

Park Chiefs of Interpretation:

Stephanie Dubois
Chief of Interpretation
Glen Canyon National Recreation Area, Arizona

Neal DeJong
Chief of Interpretation
Everglades National Park, Florida

Carolyn Keinath
Chief of Interpretation
Adams National Historic Site, Massachusetts

Jim Mack
Chief Park Interpreter
Rocky Mountain National Park, Colorado

Kay Rhode
Chief of Interpretation
Lake Meade National Recreation Area, Nevada

Park Superintendents:

Beverly Albrecht
Superintendent
Homestead National Monument of America, Nebraska

John Debo
Superintendent
Cuyahoga Valley National Recreation Area, Ohio

Frank Walker
Superintendent
Nez Perce National Historical Park, Idaho

Denver Service Center Personnel:

Billy Garrett
Chief of Architecture
Denver Service Center, Colorado

Marilyn Hof
Planner
Denver Service Center, Colorado

Sam Vaughn
Lead Interpretive Planner
Denver Service Center, Colorado

Contractors:

Jack Biesiek
Principal
Biesiek Design Associates, California

Bruce Geyman
Dearborn, Geyman and Company, Virginia

Technical Assistance Requests:

Doris Hamburg
Senior Conservator
Library of Congress, Washington, D.C.

Ann Poulos
Curator/Collections Manager
Tempe Historical Museum, Arizona