**US Army Corps
of Engineers**
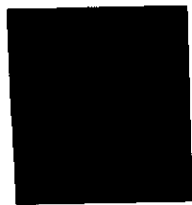
Evaluation
Procedures

VOLUME 3

INTERPRETIVE SERVICES AND OUTREACH PROGRAM (ISOP)

Project Operations
INTERPRETIVE SERVICES AND OUTREACH PROGRAM
EVALUATION PROCEDURES

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I. THE BASICS

A. METHODOLOGY

The goals of the Interpretive Services and Outreach Program according to ER 1130-2-428, are to:

a. Achieve management objectives with interpretive techniques.
b. Provide environmental education to foster voluntary stewardship of natural, cultural, and created resources.
c. Incorporate the Corps Civil Works and military missions and accomplishments into interpretive programming.
d. Improve visitor and employee safety using interpretive techniques.
e. Use environmental education, partnerships, career development, recruitment, and special programs and events to encourage students to pursue careers in mathematics and science.
f. Enhance the visitors' experience and enjoyment by anticipating their needs and providing interpretive resources to meet those needs.

Let's assume that you have determined your interpretive objectives based upon these goals, perfected a questioning strategy, acquired all necessary audiovisual props, and believe you have the perfect program. Do you? The following information is presented to assist you in understanding how and what to evaluate in your Interpretive and Outreach Program, either through self-evaluation or having another individual(s) critique your program or service. The following information is derived from the Prospect course, "Interpretive Services", taught by William J. Lewis and John A. Veverka.

In order to maintain high quality interpretation, it is essential to be able to critically appraise the effectiveness of the interpretive programs/services being offered to the project visitors. The crucial questions to be asked and answered are (from Veverka, 1977):

a. Are the objectives of the total program being met?
b. Are the objectives of the interpretive services being met?
c. Are the interpreters fulfilling the objectives of the job required of them?
d. Are the visitors satisfied with their experience?

Often, only interpretive services are evaluated as a means to determine the effectiveness of an entire interpretive program. It is beneficial, however, to also evaluate the total program and the interpreters themselves. To do this, objectives for the overall program, services, and interpreters must be identified and evaluated with respect to:

a. The visitors' psychological experience or overt behavior.
b. The numbers of visitors contacted each year.

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c. The cost effectiveness of the program (cost/visitor reached, reduction in Operation and Management costs, etc.).

Table 1 is a graphic example of how these comparisons can be made (from Wagar, 1976; Veverka et al., 1977).

Table 1 Evaluative Techniques for Interpretive Services (after Wagar, 1976; Veverka, et al, 1977)

Evaluative Technique	Description	Pros	Cons	Comments
Direct Audience Feedback	Interpretor analysis visitors' responses in face-to-face settings	Allows for immediate analysis of visitor's reaction to the interpretor and service. The interpretor can change his/her approach on the spot to elicit a better response from the visitors.	Technique is subjective since the interpretor must "interpret" the visitor's reaction to him/herself and the service.	The number of questions visitors ask, facial expressions, restlessness, etc. are often good indicators of enjoyment, boredom, etc.
Auditing By An Expert ⊥	Have an experienced interpretor watch and critique an interpretive presentation.	Allows for the input of more experience professionals into interpretive programming.	The expert judges how s/he thinks a presentation will affect a visitor. Thus, subjective.	In the case where live presentations cannot be evaluated on site, video tapes can be used.
Direct Measures of Behavior	Determine what interpretive service options visitors take when given a choice (i.e. hike vs. movie)	Allows for the determination of which services are most preferred.	Can determine what services visitors prefer but not why.	This type of information is usually determined by head counts, ticket stubs, etc. The technique could be used in conjunction with a questionaire or interview to determine why visitors made certain choices.
Observation of Audience Attention	Plant scanners in audience to watch and document how many people are focusing their eyes on the interpretor.	Allows for the determination of visitor responses during a presentation.	Assumes that watching the interpretor is synonymous with interest, understanding, enjoyment, etc.	For further reference see Dick, et at, 1975a.

Table 1 Continued

Evaluative Technique	Description	Pros	Cons	Comments
Length of Viewing or Listening Time	Compare the amount of time people look at or listen to a presentation with the amount of time it would take to completely read or hear it.	Allows for the determination of whether or not people are spending enough time with an exhibit, sign, etc. to absorb the entire message.	Cannot determine visitor enjoyment, understanding, or interest. Thus, no judgement can be made as to whether or not the message is too long.	Shiner and Shafer found that "visitors looked at displays only 15 to 64 percent of the total time required to read or listen to the total message presented." "... the longe the printed or recorded message...the shorter the viewing time" (Shiner and Shafer, 1975).
Questionnaire	A written set a questions given to visitors to determine demographic and experiencial data.	A great deal of visitor information can be obtained with a well-designed questionnaire. Questions concerning specific services can be incorporated into the questionnaire.	Subject to written response bias. Time-consuming to design, administer and evaluate.	A major problem with many questionnaires is that they are designed and written to elicit the responses the researcher wants. Great care must be taken to design a questionnaire as objectively as possible. (For more details see Van Dalen, 1976; Berdie, 1973).
Interviews	Similar to questionnaires except that questions are administered orally.	Same advanatges as questionnaires. Often a preferred method of data collection since "many people are more willing to communicate orally than in writing" (Van Dalen, 1973).	Similar problems as with questionnaires in terms of designing objective questions (Van Dalen, 1973).	For further reference, Bousquet, 1976; Van Dalen, 1973.

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Table 1 Continued

Evaluative Techniques	Description	Pros	Cons	Comments
Self-Testing Devices	Mechanical devices operated by the visitor to answer questions or uncover more interpretive information.	Allows for active participation of visitors. A "fun" technique of evaluation from the visitor's point of view.	Subject to mechanical breakdowns and vandalism. Often monopolized by children.	For further reference see Wagar (1972).
Panel of Outsiders	A panel of people not associated with interpretation nor the subject matter being presented are asked too evaluate a service.	The panel can point out the strengths and weaknesses of a service before it is ever presented to the public.	The evaluation will only be as objective as the panel members chosen.	
Other Unobtrusive Measures*	Look at fingerprints and noseprints on glass, footwear, litter (such as leaflets, ciggarette butts, etc.). Look at products of depreciative behavior (graffiti, vandalism, etc.)	May indicate heavy use or a basic design problem.	Do not know <u>why</u> areas are being used so extensively nor the specific design flow.	This information often-times can be gleaned by talking to maintenance personnel. For further reference see Webb(1966), Bousquet (1976).
Suggestion Box	A locked box where visitors can drop any comments or suggestions.	Anonymity.	Usually get comments biased towards a positive or negative extreme.	In relation to Malabar, th box should be located in VIC as a general catch-a for comments concernin all services.

*These catagories have been added by the authors and three of Wagar's original categories were deleted.
(from <u>Malabar Farm: An Interpretive Planning Process</u>, Veverka, Willis, et al, 1977)

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B. **SELF-CRITIQUE**

Self-evaluation of your interpretive performance can reveal insights into your own behavior and avenues for improvement. The following information derived from the "Interpretive Services" course will assist you with this and should be considered in developing and evaluating all forms of interpretive media:

a. **How did you communicate verbally?**

VOLUME: Were you loud enough to be heard? Was your volume appropriate for the size of the group? Did you vary tones to express your feelings?

CLARITY: Were your words pronounced clearly, without interference? Did you try to compete with other noises?

DIRECTION: Did you face your audience while speaking to them?

PACING: Was your speaking rate varied for emphasis and feeling? Was the amount of narrative varied per stop, topic, slide, etc., to provide change? Did you avoid speaking in a monotone?

FEELINGS: Were you positive toward your audience at all times by expressing warmth, interest, and enthusiasm? Did you avoid sarcastic or mocking comments? Did you avoid culturally insensitive remarks?

UNIVERSAL ACCESSIBILITY: Was your program for all visitors? For example: Did you enunciate clearly for visitors with hearing impairment who can lip read? Did you allow visitors with vision impairment an opportunity to be in front, touch objects involved in the presentation, and have slides read/described to them? Did you provide a video version of a facility tour that is inaccessible by visitors with disabilities? Did you simplify your program for audience members who have learning and language disabilities? Are there any other practical changes you could make in your program to make it universally accessible?

b. **How did you communicate nonverbally?**

BODY MOTIONS: Did you use body motions for emphasis such as pointing for direction and gesturing for explanation? Did you avoid distracting motions such as arms folded or hands in pockets, rocking, slouching, or gum chewing?

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Did you guide the audience with moves such as walking briskly?

GENERAL APPEARANCE: Did you appear clean and neat? Was your uniform or clothing choice correct for the occasion?

FACIAL GESTURES: Did you use facial gestures as positive responses to your audience, such as nodding, smiling, and facing them when listening?

EYE CONTACT: Did you make eye contact with members of your audience? Did you move your eyes from person to person so that all of the audience was covered?

MODELING: Did you do what you wanted your audience to do (i.e., bending to look at something more closely)?

GATHERING: Did you provide an opportunity for the audience to settle in before starting your presentation?

RECEPTIVITY: Did you look available for conversation before the presentation; after? Did you act supportive when your audience responded during your presentation?

LISTENING: Were you attentive to visitors' comments, questions, and replies by acknowledging the speaker with facial gestures? Did you wait for questions and responses to sink in? Did you sit quietly during the Question-Response?

POSITION: Did you locate yourself for visibility and audibility by the visitor? Did you avoid blocking a view from the audience or separating the audience?

c.   **What did you say?**

GATHERING: Did you use the preprogram time for analyzing your audience interests, capabilities, and level of knowledge?

INTRODUCTION: Was your introduction used for structuring?

INTELLIGENCE LEVEL: Did the audience understand the words you used? Did you avoid acronyms? Did they understand your explanation of new vocabulary? Did you treat the visitor as an intelligent being?

ACCURACY: Did you have any doubts about statements you made?

TRANSITIONS: Were changes from topic to topic, or stop to stop, done smoothly by connecting the data?

DEVIATIONS: Did you permit spontaneous interpretation to take place by recognizing visitor interests and attentions (i.e., an unusual bird or the sudden appearance of other wildlife)?

QUESTIONING: Were questioning strategies successfully used to encourage participation and to lead the visitor to objectives?

RESPONDING: Were you receptive? Did you get others involved?

CONCLUSION: Did you summarize? Did you structure the visitor for your objective (tell them what you told them)?

d. **Who did you communicate with?**

NONVERBAL BEHAVIOR: What did the audience's nonverbal behavior tell you? Were they listening, responding? Were they comfortable or fidgetting, aware or day-dreaming, smiling or gazing, listening or chatting to a friend, looking at you or your topic or at everything else?

SUITABILITY: Was the topic presented of interest to the audience? Did they understand you? Did you acknowledge different group types (youngsters, families, couples, etc.)?

QUESTIONS: Were questions seeking information you should have covered? Did they reflect misunderstanding? Did they relate to the topic?

COMFORT: Was your audience physically comfortable?

The following three pages contain an overall self-evaluation checklist and a worksheet for the evaluation of overall effectiveness.

Self Evaluation

As a COE park ranger, you will be evaluated by the site or area manager from time to time. Responding to the following statements may help you determine how well you are doing as an interpretor. Check the Appropriate block for each statement. You may want to ask other to give points of view. (Lewis, 1983)

● ALWAYS　◔ MOST OF THE TIME

GENERAL ATTITUDE

1. I have an insatiable curiosity. ☐ ☐ ☐ ☐

2. I realize that the search for knowledge is continuous. ☐ ☐ ☐ ☐

3. I have a love for all life. ☐ ☐ ☐ ☐

4. I have a high regard for the incredibly complex ecology that gives special vitality to my park. ☐ ☐ ☐ ☐

5. I have an appreciation for human history of my area. ☐ ☐ ☐ ☐

6. I have a high regard for park visitors. ☐ ☐ ☐ ☐

7. I am concerned for the welfare and safety of visitors. ☐ ☐ ☐ ☐

8. I want visitors to be better informed, inspired and stimulated because of who I am. ☐ ☐ ☐ ☐

9. I want to share myself and what I know with visitors. ☐ ☐ ☐ ☐

10. I treat all visitors equally regardless of age, sex, race; or the way they treat me. ☐ ☐ ☐ ☐

11. I'm cheerful, patient and courteous. ☐ ☐ ☐ ☐

12. I care about my appearance and dress appropiately for my job. ☐ ☐ ☐ ☐

13. I don't put people down for asking "dumb" questions. ☐ ☐ ☐ ☐

14. I start and end all my activities on time. ☐ ☐ ☐ ☐

15. I reach out to people; make myself approachable, available. ☐ ☐ ☐ ☐

16. I believe in what I'm doing. ☐ ☐ ☐ ☐

17. I feel enthusiastic about my work. ☐ ☐ ☐ ☐

18. I try to lighten my approach and use humor when it's appropriate. ☐ ☐ ☐ ☐

19. I'm self-confident without being conceited. ☐ ☐ ☐ ☐

20. I exert a quiet, gentle, but firm leadership. ☐ ☐ ☐ ☐

21. I can walk on water. ☐ ☐ ☐ ☐

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UNDERSTANDING OF AUDIENCES

22. I'm aware of some of the reasons people come to my park area. ☐ ☐ ☐ ☐

23. I understand the processes by which people learn. ☐ ☐ ☐ ☐

GOALS OF INTERPRETATION

24. I understand the goals of interpretation. ☐ ☐ ☐ ☐

25. I'm striving to accomplish the goals of interpretation. ☐ ☐ ☐ ☐

PRIMARY ELEMENTS OF INTERPRETATION INVOLVEMENT

26. I arrive early at my activity so I can become acquainted with my group. ☐ ☐ ☐ ☐

27. Before conducting an activity, I have always established a rapport. ☐ ☐ ☐ ☐

28. I'm aware that what I do first is especially important, and give it my special attention. ☐ ☐ ☐ ☐

29. I adapt every presentation to those in the group. ☐ ☐ ☐ ☐

30. I use questioning effectively as an involvement technique. ☐ ☐ ☐ ☐

31. I encourage visitors to use all their senses. ☐ ☐ ☐ ☐

32. I use a variety of structural patterns to make my presentations more involving. ☐ ☐ ☐ ☐

ORGANIZATION

33. Every activity I conduct has a theme. ☐ ☐ ☐ ☐

34. I select main headings which support my theme. ☐ ☐ ☐ ☐

35. I arrange my main headings in an orderly fashion. ☐ ☐ ☐ ☐

36. Introductions to my presentations create a favorable atmosphere and arouse interest in my subject. ☐ ☐ ☐ ☐

37. The conclusions to my presentations inspire my audiences. ☐ ☐ ☐ ☐

GIVING LIFE TO POTENTIALLY DULL SUBJECT

38. I use a variety of support material that's carefully researched. ☐ ☐ ☐ ☐

39. I tell stories, relate anecdotes, employ narration and use visuals in my presentations. ☐ ☐ ☐ ☐

40. I'm careful to provide transitions as I move from one idea to another. ☐ ☐ ☐ ☐

41. I select understandable words. ☐ ☐ ☐ ☐

42. Informal, concrete language typifies my presentations. ☐ ☐ ☐ ☐

43. My delivery is enthusiastic, self-assured and physically direct. ☐ ☐ ☐ ☐

44. My style of delivery is friendly, pleasant, informal and casual. ☐ ☐ ☐ ☐

45. I adapt my pace to the situation. ☐ ☐ ☐ ☐

GIVING INFORMATION AND ORIENTATION

46. I try to assess the needs of visitors and give them the amount of information ☐ ☐ ☐ ☐ I think they want.

47. I'm convinced it's important to give accurate information. ☐ ☐ ☐ ☐

48. If I don't know the answer to a visitors' question, I look it up. ☐ ☐ ☐ ☐

49. I reach out to visitors by greeting them. ☐ ☐ ☐ ☐

VISITOR CENTERS

50. I give equal attention to all visitors. ☐ ☐ ☐ ☐

51. I don't make fun of visitors' questions. ☐ ☐ ☐ ☐

52. I listen to understand when I'm hearing complaints. ☐ ☐ ☐ ☐

53. I answer questions as if it's the first time I've been asked them. ☐ ☐ ☐ ☐

54. I use sketches and visuals to enhance the spoken word. ☐ ☐ ☐ ☐

55. I sometimes ask a visitor to paraphrase the directions I've given. ☐ ☐ ☐ ☐

56. I know how to read maps upside-down. ☐ ☐ ☐ ☐

57. I give *interpreted* facts. ☐ ☐ ☐ ☐

58. I'm conscious of the need to provide for the visitors' safety. ☐ ☐ ☐ ☐

ROVING INTERPRETATION

59. I interpret facts only when its appropriate. ☐ ☐ ☐ ☐

60. I sometimes gather groups for mini-walks or mini-tours. ☐ ☐ ☐ ☐

TALKS

61. I mix with the audience during the pre-talk period. ☐ ☐ ☐ ☐

62. I make myself available to visitors for questions after a talk. ☐ ☐ ☐ ☐

63. When I use slides in a talk, I use them as support materials, not as ☐ ☐ ☐ ☐ crutches.

64. I refer to the slides directly only when there is a special reason. ☐ ☐ ☐ ☐

65. The only slides I use are those which support my theme. ☐ ☐ ☐ ☐

66. I don't use slides as cues. ☐ ☐ ☐ ☐

67. I become acquainted with my audience before the program begins. ☐ ☐ ☐ ☐

68. My campfire program doesn't run over 35 minutes. ☐ ☐ ☐ ☐

69. I use recorded music during the pre-talk period only. ☐ ☐ ☐ ☐

70. If I use community singing, I don't overdo it. ☐ ☐ ☐ ☐

71. I use interviews and question-answer periods before the talk when appropriate. ☐ ☐ ☐ ☐

72. I keep my announcements brief. ☐ ☐ ☐ ☐

DEMONSTRATIONS

73. I make sure that what I'm showing is visible. ☐ ☐ ☐ ☐

74. I gather the audience around me for an intimate, easily seen and heard ☐ ☐ ☐ ☐ presentation.

75. My historical demonstrations are accurate, interesting and relevant. ☐ ☐ ☐ ☐

WALKS, TOURS AND HIKES

76. I arrive at the assembly point at least 15 minutes before the activity is ☐ ☐ ☐ ☐ scheduled to begin.

77. I start on time. ☐ ☐ ☐ ☐

78. I warn people of dangers along the way. ☐ ☐ ☐ ☐

79. I explain the reasons for any special restrictions. ☐ ☐ ☐ ☐

80. I move the group in a way which indicates this activity isn't going to be static. ☐ ☐ ☐ ☐

81. I shorten the amount of material I cover when the group is larger. ☐ ☐ ☐ ☐

82. I maintain a pace that's neither tiring nor boring. ☐ ☐ ☐ ☐

83. I have a definite conclusion to my activity. ☐ ☐ ☐ ☐

84. I make sure all can see and hear. ☐ ☐ ☐ ☐

85. I avoid giving a canned spiel. ☐ ☐ ☐ ☐

Worksheet for Evaluation of Effectiveness

Interpretation is essential to my area's management for this main reason:

One way I can demonstrate that interpretation is essential to my area is:

The audience whose minds or actions I want to change is:

One indication I can cite that shows my program has been effective:

C. **CRITIQUE BY OTHERS**

The opinion of others can often assist in the improvement of interpretive techniques and program/product content. This significant "other" can be a supervisor, co-worker, or friend. Critique by others can also be a valuable teaching tool for other interpretors. Provide them with a sample of your program/product or ask them to be in the audience. Asking someone to videotape your performance may prove very beneficial. You can review the tape for volume, facial expressions, gestures, how many times you said okay or uh-huh, etc. If you do not have access to a video camera, a tape recording of your verbal presentations can also assist you. The following information from the course, "Interpretive Services", can be used by a critique leader for a group providing overall evaluation of an interpreter's program.

a. **Good Points**

1. (To group) What did you see him or her do that you want to incoporate in your own interpretive activities?

2. (To interpreter) Was there some approach, technique, situation handling, or planning device which worked well for you which you would recommend to others as useful?

b. **Not So Good Points**

1. (To interpreter) If you were to do it over again, what would you do differently? What did not go as planned and why? What would you caution others to do or not do in similar situations?

2. (To group) What did you learn from watching this demonstration about how interpretation can be done more effectively? How can you incorporate these ideas into your own interpretive activities?

II. CHECKLISTS

The following pages contain various checklists that can be used
for evaluation of interpretive programs and products. Most of
the checklists were adapted from a checklist in the "Interpretive
Services" Prospect Course. The checklist for teaching elementary
science is by Paul Blackwood.

A. SLIDE PRESENTATION CHECKLIST

a. Preparation

_____ Have you clearly written the objectives of your presentation?

_____ Have you analyzed your audience (size, age, experience, education, special interests)? Does this include consideration of universal accessibility and cultural sensitivity?

_____ Have you prepared an outline, organizing your talk around a theme and representing ideas in a smooth sequence?

_____ Have you researched your supporting information for accuracy and anticipated questions?

_____ Have you carefully selected slides that are relevant and that have good composition and quality?

_____ Have you practiced your presentation and checked for slide sequence and timing as well as for smooth delivery?

_____ Did you memorize or have you become familiar enough with your story and slides that it just "comes naturally"?

_____ Are you using silence in your presentation?

_____ Did you give the program an interesting but under-standable title?

_____ Does your program need additional materials to be shown or handed out? (pass around things or props)

_____ Have you checked to see if all needed equipment is available and in good condition?

_____ Have you made all necessary travel arrangements?

_____ Do you start with the simple and end with the complex?

b. Before the Program

_____ Have you checked out the meeting room (keys, lighting, PA system, noise, ventilation, outlets)?

_____ Did you set up all your equipment (prefocus and center image, check every slide, set up extension cords, screen, etc.)?

_____ Did you consider appointing and instructing someone to help you with the lights, projector, and/or doors (for late arrivals)?

c. **Presentation**

_____ Did you make all the necessary announcements?

_____ Did your introduction include a welcome, arouse interest, and set the stage for the presentation?

_____ Did you work in the name of your organization?

_____ Did you have smooth transitions between sections, ideas, and slides in the program?

_____ Did you avoid distracting body movements (change jingling, swaying)?

_____ Did you avoid making direct reference to the slides?

_____ Did you stick to your theme and not overdo your content?

_____ Did you finish with a strong definite conclusion?

_____ Could your slide program go on if the projector stopped working?

d. **Audience Rapport and Interest**

_____ Did you talk with enthusiasm?

_____ Did you maintain eye contact with the audience?

_____ Did you speak in a friendly, conversational tone?

_____ Did you relate to the audience's interests and experience?

_____ Did you use questions, examples, stories, or comparisons?

_____ Did you use quotations, testimony, or narration?

_____ Did you face the audience and not the slides?

e. **Language**

_____ Did you avoid using speech mannerisms like fillers (uh) and unnecessary or repeated phrases (okay, so, you know)?

_____ Did you use appropriate language for your audience and explain technical terms when used?

_____ Did you adapt your volume to the audience so all could hear you?

_____ Did you pronounce words correctly and distinctly?

_____ Did you vary your tone as well as your pace to add emphasis and interest to your talk?

f. **Feedback and Evaluation**

_____ Were you aware of audience reactions and feedback?

_____ Did you start and finish on time?

_____ Did you have someone (colleague) give you candid criticism?

_____ Notes for improvement.

B. INTERPRETIVE DEMONSTRATION

a. Preparation

_____ Have you clearly written the objectives of your presentation?

_____ Have you analyzed your audience (size, age, experience, education, special interests)? Does this include special considerations for universal accessibility and cultural sensitivity?

_____ Have you prepared an outline, organizing your talk around a theme, and representing ideas in a smooth sequence?

_____ Have you researched your supporting information for accuracy and anticipated questions?

_____ Have you carefully selected props and other materials that are relevant and of good quality?

_____ Have you practiced your presentation and checked for timing as well as for smooth delivery?

_____ Did you memorize or have you become familiar enough with your story and props that it just "comes naturally"?

_____ Are you using silence in your presentation?

_____ Did you give the program an interesting but understandable title?

_____ Does your program need additional materials to be shown or handed out? (pass around things or props)

_____ If using a living creature, have you selected an individual with a temperament that allows viewing, handling without injury or undue stress to it, and that ensures the safety of the visitors?

_____ Have you checked to see if all needed equipment is available and in good condition?

_____ Have you made all necessary travel arrangements?

_____ Do you start with the simple and end with the complex?

b. **Before the Program**

_____ Have you checked out the meeting room (keys, lighting, PA system, noise, ventilation, outlets)?

_____ Did you set up all your equipment?

_____ Did you consider appointing and instructing someone to help you with the lights, props, and/or doors (for late arrivals)?

c. **Presentation**

_____ Did you wear the proper uniform or appropriate clothing and have a neat, clean appearance?

_____ Did you make all the necessary announcements?

_____ Did your introduction include a welcome, arouse interest, and set the stage for the presentation?

_____ Did you work in the name of your organization?

_____ Did you have smooth transitions between sections, ideas, and props in the program?

_____ Did you avoid distracting body movements (change jingling, swaying, gum chewing)?

_____ Did you stick to your theme and not overdo your content?

_____ Did you finish with a strong definite conclusion?

_____ Could your program go on if one of your props breaks or escapes?

d. **Audience Rapport and Interest**

_____ Did you talk with enthusiasm?

_____ Did you maintain eye contact with the audience?

_____ Did you speak in a friendly, conversational tone?

_____ Did you relate to the audience's interests, needs, and experience?

_____ Did you use questions, examples, stories, or comparisons?

_____ Did you use quotations, testimony, or narration?

_____ Did you face the audience?

e. **Language**

_____ Did you avoid using speech mannerisms like fillers (uh) and unnecessary or repeated phrases (okay, so, you know)?

_____ Did you use appropriate language for your audience and explain technical terms when used?

_____ Did you adapt your volume to the audience so all could hear you?

_____ Did you pronounce words correctly and distinctly?

_____ Did you vary your tone as well as your pace to add emphasis and interest to your talk?

f. **Feedback and Evaluation**

_____ Were you aware of audience reactions and feedback?

_____ Did you start and finish on time?

_____ Did you have someone (colleague) give you candid criticism?

_____ Notes for improvement.

C. GUIDED FIELD ACTIVITY

a. Preparation

_____ Have you clearly written the objectives of your presentation?

_____ Have you analyzed your audience (size, age, experience, education, special interests)? This can include a health and safety analysis for programs conducted in inclement weather, subject to insect or snake occurrences or requiring strenuous physical demands or special clothing. Your advertisement for the program may need to include notices for these circumstances. Does this include special considerations for universal accessibility and cultural sensitivity?

_____ Have you prepared an outline, organizing your talk, demonstrations, or trail walk around a theme, and representing ideas in a smooth sequence? On a trail walk, do you begin and end in approximately the same location?

_____ Have you researched your supporting information for accuracy and anticipated questions? Do you know what plants are currently in bloom; what animals are typically encountered at this time of year?

_____ Have you carefully selected props and other materials that are relevant and of good quality?

_____ Have you practiced your presentation and checked for timing as well as for smooth delivery?

_____ Did you memorize or have you become familiar enough with your story, props, and location that it just "comes naturally"?

_____ Are you using silence in your presentation?

_____ Did you give the program an interesting but understandable title?

_____ Does your program need additional materials to be shown or handed out (pass around things or props)? Will these encumber visitors during a physical activity?

_____ Have you checked to see if all needed equipment is available and in good condition?

_____ Have you made all necessary travel arrangements?

_____ Do you start with the simple and end with the complex?

b. **Before the Program**

_____ Have you checked out the trail or field location to ensure that it is accessible and in good condition?

_____ Did you set up all your equipment?

_____ Did you consider appointing and instructing someone to help you with the activity (i.e., someone to help with props or bring up the rear on a trail walk with a large number of visitors)?

_____ Are there sensitive plants, animals, or, historical/cultural resources present that require special precautions to be taken?

_____ Have you identified safety hazards such as poisonous plants, insects, snake dens?

_____ Did you count the members of your group before leaving for the field?

c. **Presentation**

_____ Did you wear the proper uniform or appropriate clothing and have a neat, clean appearance?

_____ Did you make all the necessary announcements? Remind the audience again of physical requirements, limitations, or necessary precautions.

_____ Did your introduction include a welcome, arouse interest, and set the stage for the activity?

_____ Did you work in the name of your organization?

_____ Did your introduction include any warnings or behavioral information about animals, if necessary?

_____ Did you have smooth transitions between sections, props, and trail stops in the program?

_____ Did you maintain control of your audience?

_____ Did you avoid distracting body movements (change jingling, swaying, chewing gum)?

_____ Did you stick to your theme and not overdo your content?

_____ Did you finish with a strong definite conclusion?

_____ Could your program go on if a sudden weather change forces you indoors?

d. **Audience Rapport and Interest**

_____ Did you talk with enthusiasm?

_____ Did you maintain eye contact with the audience?

_____ Did you speak in a friendly, conversational tone?

_____ Did you relate to the audience's interests, needs and experience?

_____ Did you use questions, examples, stories, or comparisons?

_____ Did you use quotations, testimony, or narration?

_____ Did you face the audience?

e. **Language**

_____ Did you avoid using speech mannerisms like fillers (uh) and unnecessary or repeated phrases (okay, so, you know)?

_____ Did you use appropriate language for your audience and explain technical terms when used?

_____ Did you adapt your volume to the audience so all could hear you and wait for all of the group to catch up before speaking?

_____ Did you pronounce words correctly and distinctly?

_____ Did you vary your tone as well as your pace to add emphasis and interest to your talk?

f. **Feedback and Evaluation**

_____ Were you aware of audience reactions and feedback?

_____ Did you start and finish on time?

_____ Did you have someone (colleague) give you candid criticism?

_____ Notes for improvement.

D. **EXHIBITS**

a. **Preparation**

_____ Have you clearly written the objectives of your exhibit?

_____ Have you analyzed your audience (size, age, experience, education, special interests)? Does this include special considerations for universal accessibility and cultural sensitivity?

_____ Have you prepared a "mock-up" of the exhibit to examine layout, lighting, traffic flow, size, etc.?

_____ Have you researched the information to be shown for accuracy and anticipated questions?

_____ Have you carefully selected props and other materials that are relevant, authentic, and of good quality?

_____ Did you give the exhibit an interesting but understandable title?

_____ Have you checked to see if all needed equipment to construct the exhibit is available and in good condition? Do artifacts require special curation, security?

_____ Is your exhibit in accordance with the Graphic Standards Manual where applicable?

_____ If the exhibit is to be constructed by a contractor, have you prepared the necessary paperwork and interviewed and evaluated the work of prospective bidders?

_____ Have you constructed the exhibit to be attractive and durable?

_____ Did you select colors, type styles and sizes that are appropriate for the topic and easily viewed by visitors?

_____ Is the exhibit designed to be dynamic? Can panels, artifacts, etc., be changed?

_____ Is the exhibit situated for a natural traffic flow pattern?

b. **Audience Rapport and Interest**

_____ Does the exhibit relate to the audience's interests, needs, and experience?

_____ Did you use questions, examples, stories, or comparisons in the exhibit to ease understanding?

_____ Is the exhibit interactive?

_____ Did you use quotations, testimony, or narration?

c. **Language**

_____ Did you use appropriate language for your audience and explain technical terms when used? Did you avoid acronyms?

_____ Did you adapt the volume of an auditory exhibit to the audience and setting?

_____ Are all words spelled correctly, punctuated, and used in a proper grammatical manner?

d. **Feedback and Evaluation**

_____ Do visitors actually stop and examine the exhibit or "breeze on by"?

_____ Do visitors leave the exhibit with a puzzled look or unanswered questions?

_____ Notes for improvement.

E. PUBLICATIONS

a. Preparation

_____ Have you clearly written the objectives of your publication?

_____ Have you analyzed your audience (size, age, experience, education, special interests)? Does this include special considerations for universal accessibility and cultural sensitivity?

_____ Have you prepared a "mock-up" of the publication to examine layout, text style and size, etc.?

_____ Have you researched the information to be printed for accuracy and anticipated questions? Do you credit the source of all reprinted information?

_____ Have you carefully selected photographs and other graphics that are relevant and of good quality?

_____ Did you give the publications an interesting but understandable title and cover art? Does it "grab" the potential reader's interest?

_____ Have you checked to see if all needed information, graphics, and equipment to assemble the publication are available and in good condition?

_____ Have you received a publication identification number from your District office?

_____ Is your publication layout in accordance with the Graphic Standards Manual?

_____ If the publication is to be developed or written by a contractor, have you prepared the necessary paperwork and interviewed or evaluated prospective bidders?

_____ Have you constructed the publication to be attractive and durable? Is it necessary to weatherize the publication against rain, sunlight?

_____ Did you select colors, type styles, and sizes that are appropriate for the topic and easily read by visitors?

_____ Is the pubication designed to be dynamic? Can panels, chapters be changed, added?

_____ Are the narrative and folding layout designed for normal reading patterns?

b. Audience Rapport and Interest

_____ Does the publication relate to audience's interests, needs, and experience?

_____ Did you use questions, examples, stories, or comparisons in the publication to ease understanding?

_____ Did you use quotations, testimony, or narration?

c. Language

_____ Did you use appropriate language for your audience and explain technical terms when used? Did you avoid acronyms?

_____ Are all words spelled correctly, punctuated, and used in a proper grammatical manner?

d. Feedback and Evaluation

_____ Do visitors actually stop and read the publication, keep it, or drop it on the ground?

_____ Do visitors have unanswered questions after reading the publication?

_____ Notes for improvement.

F. **VIDEO/FILM**

a. **Preparation**

_____ Have you clearly written the objectives of your video/film?

_____ Have you analyzed your audience (size, age, experience, education, special interests)? Does this include special considerations for universal accessibility and cultural sensitivity?

_____ Have you prepared a "mock-up" of the video/film in the form of storyboard cards, or an outline?

_____ Have you researched the information to be filmed for accuracy and anticipated questions? Do you credit the source of all reprinted information?

_____ Have you carefully selected photographs and other graphics that are relevant and of good quality?

_____ Have you carefully selected your filming location for lighting, noise, other distractions, suitability?

_____ Did you give the video/film an interesting but understandable title?

_____ Have you checked to see if all needed information, graphics, equipment, and personnel to assemble the video/film are available and in good condition?

_____ Are any organization graphics used in accordance with the Graphic Standards Manual?

_____ If the video/film is to be developed or filmed by a contractor, have you prepared the necessary paperwork and interviewed or evaluated prospective bidders?

_____ Did you select graphic colors, type styles, sizes, and images that are appropriate for the topic and easily read and understood by visitors?

_____ Is the video/film designed to be dynamic? Can headers, sections be changed, added?

_____ Is any narration, music used clearly understandable?

b. **Audience Rapport and Interest**

_____ Does the video/film relate to audience's interests, needs, and experience?

_____ Did you use questions, examples, stories, or comparisons in the video/film to ease understanding?

_____ Did you use quotations, testimony, or narration?

c. **Language**

_____ Did you use appropriate language for your audience and explain technical terms when used? Did you avoid acronyms?

_____ Are all words spelled correctly, punctuated, and used in a proper grammatical manner?

d. **Feedback and Evaluation**

_____ Is the audience attentive when watching the video/film?

_____ Do visitors have unanswered questions after viewing the publication?

_____ Notes for improvement.

G. **CHARACTER PROGRAM**

a. **Preparation**

_____ Have you clearly written the objectives of your presentation?

_____ Have you analyzed your audience (size, age, experience, education, special interests)? Does this include special considerations for universal accessibility and cultural sensitivity?

_____ Have you prepared an outline, organizing your talk around a theme, and representing ideas in a smooth sequence?

_____ Have you researched your supporting information, dialogue/dialect for accuracy and anticipated questions?

_____ Have you carefully selected props, costumes, and other materials that are relevant and of good quality?

_____ Have you practiced your presentation and checked for timing as well as for smooth delivery?

_____ Did you memorize or have you become familiar enough with your story and props that it just "comes naturally"?

_____ Are you using silence in your presentation?

_____ Did you give the program an interesting but understandable title?

_____ Does your program need additional materials to be shown or handed out? (pass around things or props)

_____ Does your program require additional explanation (i.e, living history programs that may not be familiar to visitors)?

_____ If using a living creature, have you selected an individual with a temperament that allows viewing, handling without injury or undue stress to it, and that ensures the safety of the visitors?

_____ Have you checked to see if all needed equipment is available and in good condition?

_____ Have you made all necessary travel arrangements?

_____ Do you start with the simple and end with the complex?

b. **Before the Program**

_____ Have you checked out the meeting room (keys, lighting, PA system, noise, ventilation, outlets) or outside location?

_____ Did you set up all your equipment?

_____ Did you consider appointing and instructing someone to help you with the introduction, lights, props, and/or doors (for late arrivals)?

c. **Presentation**

_____ Did you wear the proper uniform or appropriate clothing, costume and have a neat, clean appearance?

_____ Did you make all the necessary announcements?

_____ Did your introduction include a welcome, arouse interest, and set the stage for the presentation?

_____ Did you work in the name of your organization?

_____ Did you have smooth transitions between sections, ideas, and props in the program?

_____ Did you avoid distracting body movements (change jingling, swaying, gum chewing) unless these are a required part of your character?

_____ Did you stick to your theme and not overdo your content?

_____ Did you finish with a strong definite conclusion?

_____ Could your program go on if one of your props breaks or escapes?

d. **Audience Rapport and Interest**

_____ Did you talk with enthusiasm?

_____ Did you maintain eye contact with the audience?

_____ Did you speak in a friendly, conversational tone?

_____ Did you relate to the audience's interests, needs, and experience?

_____ Did you use questions, examples, stories, or comparisons?

_____ Did you use quotations, testimony, or narration?

_____ Did you face the audience?

e. **Language**

_____ Did you avoid using speech mannerisms like fillers (uh) and unnecessary or repeated phrases (okay, so, you know)?

_____ Did you use appropriate language for your audience and explain technical terms when used?

_____ Did you adapt your volume to the audience so all could hear you?

_____ Did you pronounce words correctly and distinctly?

_____ Did you vary your tone as well as your pace to add emphasis and interest to your talk?

f. **Feedback and Evaluation**

_____ Were you aware of audience reactions and feedback?

_____ Did you start and finish on time?

_____ Did you have someone (colleague) give you candid criticism?

_____ Notes for improvement.

H. **TEACHING ELEMENTARY SCIENCE**

a. **In my Teaching (Interpretive and Outreach Programs) is There Opportunity or Provision for Children to**

_____ Raise questions and problems of importance or interest to them?

_____ Study these questions and problems?

_____ Help plan "things to do" in studying science problems?

_____ State clearly the problems on which they are working?

_____ Gather accurate data through reading, field trips, demonstrations, experiments, and talking to resource people?

_____ Make hypotheses to be tested?

_____ Analyze the data to see how it relates to the problem?

_____ Think about the application of science in their everyday living?

_____ Think about science relationships and processes instead of merely naming things and learning isolated facts?

_____ Bring science materials of different kinds for observation and study?

_____ Engage in individual science interests?

b. **In my Teaching (Interpretive or Outreach Programs), Do I Periodically and Systematically Check on the Children's Growth in**

_____ Ability to locate and define problems right around them?

_____ Acquiring information on the problem being studied?

_____ Ability to observe more accurately?

_____ Ability to make reports on or record their observations?

_____ Ability to solve problems?

_____ Ability to think critically?

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_____ Ability to explain natural phenomena?

_____ Ability to distinguish between facts and fantasies?

_____ Suspending judgement until evidence is collected?

_____ Being open minded or willing to change belief?

_____ Cooperating with others?

_____ Understanding the cause and effect relationships of events?

_____ Skill in using more common scientific instruments (thermometers, scales, rulers, etc.)

The original checklist appeared in "Evaluating Teaching Practices in Elementary Science", Education Briefs, No. 21, July 1959, OE-20009-21, Washington, D.C., Department of Health, Education, Welfare, Office of Education.

III. MANAGING YOUR DATA

A. DEVELOPING A COMPUTER DATABASE

Interpretive and Outreach programs at a facility can be extensive and diverse. Some facilities are required to provide records on attendance and program type to higher authorities. Whether for upward reporting requirements, or a simple desire to track your program and analyze trends, you may want to establish a computer database.

Numerous database management software packages are available from the private sector. Some examples include DBase, Foxpro and Lotus. Even word processing software packages like WordPerfect can be used to maintain basic information in a set format. The primary differences between the two types of software is that true database management software can perform mathematical computations on the data, and index and sort the data as per your commands. The following lists general steps to be undertaken in developing a computer database for any software package:

a. Determine what information you want to track and why. Do you need to know how many visitors attended onsite programs, offsite or outreach programs, what the program topic was, what kind of program it was, who presented the program, where the program was presented, when it was presented, who it was presented to, how long it lasted, etc.? Keep in mind that the more complex your database is, the more time it will require to complete, and the greater the chance for misunderstandings and errors.

b. Do you need to perform mathematical computations on the data, or index it in different ways?

c. Prepare a draft form that lists all of the desired pieces of information.

d. Examine each "field" or category of information to determine how many spaces you need to allow for the data input. For example, do you need to allow 30 spaces for a program title, is the longest employee's name 25 spaces? The size page you want to print your report on will limit your overall column widths and cause data to wrap if necessary.

e. Determine whether or not the data already exists in another format, or will have to be generated.

f. Follow instructions for your software package to establish a data input format, input data and print data in the desired format.

g. If you are required to provide upward report to varying
    levels of supervision, ensure that one database will
    fill the requirements for all levels.

    An example printout from a Lotus database developed by
Bonneville Lock and Dam may be found on the following page.

1992 Interpretive Services Visitor Center Statistics

The following report shows Visitor Center program statistics for 1992 at Bonneville Lock & Dam. Statistics in this report only reflect Interpretive Service's programs and Visitor Center counts. Not included are contacts made by other resource or project staff or visitation to fishing and other project visitor facilities.

Statistics are shown for each type of program given and are broken down by month and visitor area (BIVC or PH2).

Statistics were reported on daily forms by the person giving the program. Information includes: type of program, time the program was given, duration of program, and visitor attendance.

The following types of programs were given in 1992:

Guided Walks- A 45 to 60 minute walk around the visitor facilities, usually outside, to interpret hydropower, navigation, fish, water safety, and recreation. This program is presented to visitors who respond to an announcement given over the P.A. system.

Scheduled Special Groups- Given to groups who use our tour reservation system. Mostly school groups, but also travel tours and VIP groups. Content of the tour is geared toward the desires of the group. These groups often also schedule use of the theater for a film or slide show.

Hydropower Talk- A brief explanation of power production and distribution. Presented to visitors who respond to an announcement given over the P.A. system.

Fish Talk- A brief explanation of fish bypass systems, fish identification, and life cycles. Also presented to visitors who respond to an announcement given over the P.A. system.

Audio Visuals- Any film or slide show presented to the public in our theaters. The mini-theater is not counted with main theater presentations.

Special Programs- These may include Campground Programs, Living History, Navigation Lock Talks, Musical Programs or any other programs not falling in other categories.

Unscheduled Activities- Programs given in addition to the daily scheduled ones. These are often given at the request of a visitor or impromptu awareness of some visitors need by a Ranger or Park Guide.

Rove- Random interaction of the Rangers and Guides with the visitors to answer their questions.

Summary

Total visitation to Bonneville Dam's Visitor Centers was up 15% over last year's with a total of 384,852 visitors (based on car and bus counts). Both PH2 and BIVC received greater visitation than last year.

While visitation was up, by in large the number of programs and visitor contacts was down. Walks, audio visuals, and unscheduled activities were all down from last year and virtually no hydro talks were scheduled. We did give more fish talks this year as well as special programs and scheduled special groups.

Of the 384,852 that visited either BIVC or the North Shore Complex 58,280 (or 15%) had some contact with an interpreter (other than initial desk contact). This is about 5% less than last year when nearly 20% of the visiting public received contact with an interpreter.

Visitor Hours were also calculated for most activities. This was done in the following manner:

(Program length) * (# of visitors in the program)/60 minutes

This gives you the visitor hours for a single program. These visitor hours are added up to give a visitor hour total for each type of program for each month.

Example:	Length		# of Visitors			Visitor Hours
	60	*	25	/60	=	25
	90	*	20	/60	=	30
	30	*	30	/60	=	15
						70 Visitor Hours

Visitor hours are shown for each activity (accept roving). Last year's total was 37,698. The visitor hour total for 1991 was 39,859.

1992 VISITOR CENTER STATISTICS

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Totals
BIVC GUIDED WALKS													
# walks	0	0	0	0	2	29	86	61	31	1	0	0	210
# visitors	0	0	0	0	17	416	1913	1448	509	11	0	0	4314
avg length	0	0	0	0	45	44	45	46	48	45	0	0	45
avg grp size	0	0	0	0	8	14	22	24	16	11	0	0	16
visitor hours	0	0	0	0	13	320	1438	1106	410	8	0	0	3295
PH2 GUIDED WALKS													
# walks	0	0	1	1	0	3	23	20	5	0	0	0	53
# visitors	0	0	10	4	0	37	139	167	84	0	0	0	441
avg length	0	0	50	60	0	45	44	39	43	0	0	0	47
avg grp size	0	0	10	4	0	12	6	8	17	0	0	0	10
visitor hours	0	0	8	4	0	28	111	131	60	0	0	0	342
TOTAL GUIDED WALKS													
total walks	0	0	1	1	2	32	109	81	36	1	0	0	263
visitor total	0	0	10	4	17	453	2052	1615	593	11	0	0	4755
avg length	0	0	50	60	45	44.5	44.5	42.5	45.5	45	0	0	47
avg grp size	0	0	10	4	8	13	14	16	16.5	11	0	0	12
total vis hours	0	0	8	4	13	348	1549	1237	470	8	0	0	3637

Scheduled Walks

# of Walks Given — Month

BIVC   PH2   1991 total

40
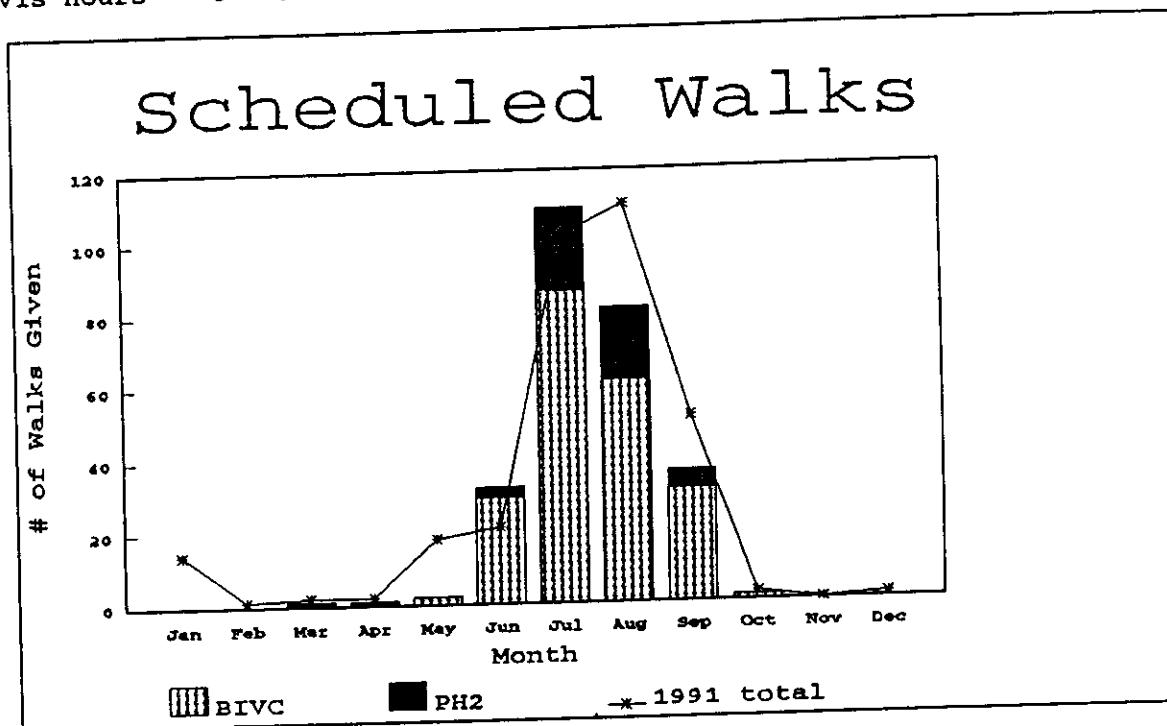
B. **SAMPLE FORMS**

The following pages contain examples of interpretive program report formats used by various Corps of Engineers facilities.

Type of Activity & Title	Location of Presentation	Date	Program Duration (From-To)	Person in Charge	No. of People Present
VOLUNTEER					
U of MS Wood Duck Volunteer Program	Toby Tuby Creek Sardis Lake	12 Feb 93 19 Feb 93 22 Feb 93	1300-1500 1300-1430 1300-1530		7 vols @ 2 hrs ea = 14 hrs 7 vols @ 1-1/2 hrs ea = 10.5 hrs 8 vols @ 2-1/2 hrs ea = 20 hrs
Campground Host	Oak Grove Campground	Mon of Feb		Harry Upton	1 vol total = 244 hrs
BSA Troop 180 Construction of Bluebird Boxes	Sardis, MS	Mon of Feb		Joe Van Dyke Gary Hardin	4 scouts @ 27.5 hrs ea = 110 hrs
BSA Troop 180 Placement of Bluebird Boxes	Sardis Lake	27 Feb 93	0800-1530	Joe Van Dyke Gary Hardin	15 scouts @ 7.5 hrs ea = 112.5 hrs
Planting Wildlife Food Plots (Pontotoc Quail Unlimited)	Bakersfield Sardis Lake	Mon of Feb		R. Patterson	7 vols =-56 hrs total
Prescribed Burning Quail Unlimited Assisting Project Personnel	Bakersfield Sardis Lake	Mon of Feb		R. Patterson	3 vols = 12 hrs total
"Conservation Carnival '93" Organizational Mtg	University of MS	04 Feb 93	1500-1600	D. Dutton Dr. Gilbert	1 instructor, 3 students @ 1 hr ea = 4 hrs
	University of MS	18 Feb 93	1500-1600	D. Dutton Dr. Gilbert	1 instructor, 3 students @ 1 hr ea = 4 hrs

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MONTHLY ENVIRONMENTAL INTERPRETIVE PROGRAM REPORT

TO CELMK-OD-M   FROM CELMK-OD-MSLFO   DATE 02 MAR 93

Type of Activity & Title	Location of Presentation	Date	Program Duration (From-To)	Person in Charge	No. of People Present
INTERPRETIVE ACTIVITIES					
Slide Presentation, Flood Control, Natural Resource Management, Water Safety Visitor Assistance	Tupelo HS Tupelo, MS	04 Feb 93	0800-1500	B. Latham V. Austin	187
Presentation - Standard Operating Procedures for Sardis/Enid Lakes WSC	Batesville, MS	11 Feb 93	1900-2100	D. Dutton T. Brooks F. Walker J. Carver	27
Presentation - Sardis Lake Area Boosters	SLFO Conference Room	16 Feb 93	1900-2100	D. Dutton F. Walker	12
Water Safety Presentation	TVA Water Safety Instructors Pickwick, TN	17 Feb 93	1030-1200	D. Dutton	55
Presentation - "Conservation Carnival '93"	Oxford Elementary 5th Grade Teachers Oxford, MS	22 Feb 93	1515-1600	D. Dutton	8
*"Celebrate the Earth" Program Presentation	New Albany Middle School New Albany, MS	23 Feb 93	0830-1030	D. Dutton	5
SPECIAL EVENTS					
60 Day Crappiethon Tournament	Sardis Lake	February			
Little Dixie Bass Tournament	Engineer Point	February		Stan Sherwood	50

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Type of Activity & Title	Location of Presentation	Date	Program Duration (From-To)	Person in Charge	No. of People Present
Aquafest '93 Organizational Mtg	Batesville, MS	23 Feb 93	1400-1530	F. Walker D. Dutton N. Hubbard	7 vols @ 1-1/2 hrs ea = 10.5 hrs
U of MS Wood Duck Volunteer Program	Clear Creek Sardis Lake	03 Feb 93	1300-1400	Dr. Gilbert	9 researchers, 1 instructor @ 1 hr ea = 10 hrs
		17 Feb 93	1300-1500	Dr. Gilbert	9 researchers @ 2 hrs ea = 18 hrs
		24 Feb 93	1400-1600	Dr. Gilbert	8 researchers @ 2 hrs ea = 16 hrs

TOTAL VOLUNTEER HOURS FOR FEB = 641.5 HOURS

*Program conducted in conjuction with on-going plans to conduct "Celebrate the Earth '93"

TOTAL VISITATION DURING THIS PERIOD ___237,782 VISITOR HOURS___   TOTAL PROGRAM ATTENDANCE ___294___

SIGNATURE
Resource Manager

LMK 2056

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CAESAR CREEK LAKE VISITOR CENTER
Monthly Visitation Records

(H0189B)

Month Day>>>>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Visitor Center	5	17	31	36	5	16	105	131	44	7	41	73	44	110	54	6	50
Orientation	6	—	—	—	—	—	15	—	—	31	—	—	19	15	—	7	—
Programs/School Groups	—	—	—	—	—	—	—	—	—	40	156	—	19	15	—	—	—
Special Events	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Water Safety Programs	—	1	—	—	—	—	—	—	—	—	2	—	19	15	—	1	70
Off-site Programs	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40
Weather	Rain	Cld/Pt	Snow	Wt/Sn	Snow	Cldy	Hzl/Cldy	Pt/Cldy/Pcldy	Rain	Rain	Rain	Pt/dy	Sun/Sno	Sun/Sno	Pt/Cldy	Pt/Sun	Cldy
Volunteer Hours												0					

Month Day>>>>	18	19	20 Rept	21	22	23	24	25	26	27	28	29	30	31	Total	CumT
Visitor Center	7	85	84	43	41	8	12	11	6	42	43	47	15		1168	4490
Orientation	—	80	80	3	—	—	—	—	9	11	—	—	4		113	721
Programs/School Groups	—	80	80	84	—	—	—	—	2	—	—	—	—		285	410
Special Events	—	—	—	24	—	—	—	—	5	—	—	—	—		0	212
Water Safety Programs	—	80	80	—	—	—	—	—	6	—	—	—	350		643	206
Off-site Programs	—	—	—	—	—	—	—	—	—	—	—	—	350		720	524
Weather	Rain	Cldy/Sony	Sony	Rain	Rain	Cldy	Sun/Sn	Cldy/Sun	—	Cldy	Cldy	Pt Cld				
Volunteer Hours				Cldy/0												

PUBLIC RELATIONS ACTIVITIES:

a. ON SITE PROGRAMS:

    (1) Control Tower Tour   13
    (2) Geology: The Active Earth   13
                                             Total   26

b. OFF SITE PROGRAMS:

    (1) Corps Missions at Caesar Creek Lake   23
    (2) Water Safety: In-School Scouting   768
    (3) Birds: Identification and Adaptations   200
                                             Total   991

c. SPECIAL PROGRAMS:

    (1) March 04 - Members of Ohio Horsemen's Council met
    in the Multi Purpose Room. Attendance for the meeting
    was 13.

    (2) March 13 & 20 - The Cincinnati Audubon Society held
    a slide program about bird identification in the
    Theater. Attendance for the two programs was 22.

    (3) March 18 - A Green Up Day Meeting was held in the
    Multi-purpose Room. Attendance for the meeting was 8.

d. ON/OFF SITE & SPECIAL PROGRAM TOTAL: 1048

e. TOTAL VISITOR CENTER VISITATION: (Walk In)   648

VOLUNTEER SERVICES:

a. VOLUNTEER REPORT: March 1993

                                                     Hours
    Service
    Visitor Center Receptionist   13.25
    Nest Box Maintenance   64.00

                                            Total   77.25

b. TOTAL DOLLAR BENEFIT FROM VOLUNTEERS: $818.89

WARNINGS AND CITATIONS:

a. None

Speaker: Tom Wisnauckas   **Date:**   SEptember 12, 1992

PROJECT/SITE: Knightville Dam/ Indian Hollow Campground

PROGRAM TITLE: The Red Fox

AUDIENCE (IF AN ORGANIZED GROUP): Windham Youth Organization

POINT OF CONTACT:

NO. IN AUDIENCE: 52

SHORT SYNOPSIS OF PROGRAM: Viewed Film, "The Red Fox", presented
mounted red fox, discussed rabies and
importance of leaving wild animals alone.

COMMENTS FOR FUTURE PROGRAMS: The length of this film fine. Now that
the LCRB has a video projector need to
transfer films to video tape.

.Mounts do attract attention. May want to
bring out the WEst Hill Dam coyote mount
to compare to size of fox.

VISUAL AIDS: Film, "The Red Fox", red fox mount.

HANDOUTS: None

ITEMS OF NED PROPERTY USED: 16mm movie projector, red fox film; red fox
mount.

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NED   FORM 732
1 JUN 80

IV. PUBLICATIONS

The following publications are provided as reading references to expose you to varying philosophies and techniques for evaluation of interpretive and outreach programs.

Where's the Interpretation in Interpretive Exhibits?

BY JOHN VEVERKA

Take a closer look at your exhibits. Are they merely "informational," or are they truly "interpretive?"

Over the past few years most museums, nature centers, zoos, and other interpretive organizations have added the word "interpretive" to their exhibits. Many professional exhibit design and fabrication firms also note that they can develop interpretive exhibits. In the course of having been involved in formal evaluations of ·exhibits for clients, or in working with exhibit design firms, I have noticed that many (most!) of the interpretive exhibits being planned and designed were not in the least sense "interpretive."

It is the goal of the article to provide some guidelines and suggestions as to just what are the elements that help transform an exhibit from being "informational" to being truly "interpretive."

Remember the Visitor.

In planning for the development of interpretive exhibits, the element in the planning process most often left out is a real understanding of who the exhibit is for—the visitor. All too often exhibits are planned for the interest of the naturalist or curator with little

What is an Exhibit?

An exhibit is an array of cues purposely brought together with defined boundaries for a desired effect.

Reasons for Exhibits.

1. Tell a story in an ordered sequence or fashion.
2. Tell a story that can't be told on site.
3. Bring artifacts and stories to places where people are.
4. Incorporate and protect "real" artifacts.
5. Bring extremes into human scale.
6. Allow visitors freedom to pace themselves.
7. Allow staff to do other things.

What is an Interpretive Exhibit?

An exhibit that makes its topic "come to life" through active visitor involvement and extreme relevance to the everyday life of the viewer.

Characteristics of Interpretive Exhibits.

1. Employ interpretive techniques and principles (Tildens').
   - Provoke interest.
   - Relate to the everyday life of the viewer.
   - Reveal a unique ending or viewpoint.
   - Address the whole (show the context in which an artifact, site, event, etc., fits into the "big picture").
   - Have message unity.
2. Use "bridges" to active visitor involvement.
3. Have a sense of context, relate to other exhibits which it is associated in sequence or flow.
4. Leaves the visitor "asking for more."

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regard for how people learn and remember new information.

The Concept of Exhibit Load.

Exhibit load is the term commonly used to describe the amount of time and energy (either physical or emotional) that each exhibit requires the visitor to use in interacting with it. Usually the highest load exhibits are the interactive ones, and the low load exhibits are the most passive ones. The exhibit load classification matrix shown in Figure 1 gives one way to help determine the load of an exhibit.

The main idea here is that as the viewer goes from cell rank 1—> 2—> 3 there is generally decreasing intrinsic interest. Thus, more (better) use of interpretive techniques is required for type 3 exhibits than type 1 exhibits.

In addition, research has shown that people are more interested in dynamic, animated, changing stimuli than in inert flatwork. We also know that visitors have more intrinsic interest in real objects than in other forms, such as replicas, as is shown in Figure 2.
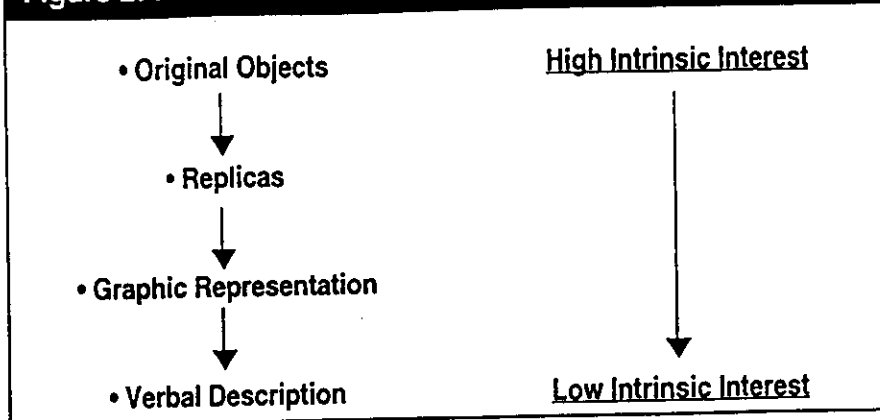
The best plan of action, we have

Figure 2: Intrinsic Interest in Exhibit Materials

- Original Objects

  ↓

- Replicas

  ↓

- Graphic Representation

  ↓

- Verbal Description

High Intrinsic Interest

↓

Low Intrinsic Interest

Figure 1: Exhibit Classification Matrix

Visitor mode		motion	inert
	active	1	2a
	passive	2b	3

Examples:

1— Seismograph, live animal, "hands-on device."

2a—Electronic exhibit where visitors push buttons.

2b—Viewing zoo animal, moving models.

3— Art, photographs, flat-work graphics

found, is to have a diversity of exhibit load types presented in a purposeful pattern. For example, an exhibit gallery might start with a type 2 exhibit or a type 3 exhibit, slowly building up to a type 1 (interactive) exhibit again. We usually recommend that the interactive exhibits be the ones that illustrate the main point of the concept being interpreted. Also, that there not be too many type 1 exhibits. It is very easy to burn out a visitor with too many things to ring, touch, pull, etc. Then the exhibit gallery turns into an amusement park where the educational value is · lost to the entertainment value. On the reverse end, art museums are mostly type 3 exhibits, and can be very dull and unexciting. The most successful galleries have a well-planned blend of exhibit types.

Planning Interpretive Exhibits.

In planning interpretive exhibits the element that is most often left out of the planning process is objective. Many times the design form or in-house designer, is asked to develop an exhibit without knowing what the exhibit is really supposed to do. It is particularly hard to evaluate the effectiveness of any exhibit if it has no clear objectives. In planning the objectives for interpretive exhibits we require three levels of objectives.

1. Learning Objectives.
2. Behavioral Objectives.
3. Emotional Objectives.

Learning Objectives: Those objectives that state just what you want the visitor to remember, such as how to recognize poison ivy.

Behavioral Objectives: Those objectives that state what action or behavior you want from the visitor either while at the exhibit, or some later action. These might include: pull a lever, look through a microscope, not picking wildflowers, not littering, etc.

Emotional Objectives: Emotional objectives are those that will have the most impact on the visitor's long-term memory. They are also the important objectives for the exhibit designer. They tell of the feelings that the visitor is to be left with after viewing the exhibit. These may include sad, angry, happy, excited, encouraged, or other feelings.

Quite often, if the emotional objective is not met, the behavioral objective will not occur either. For example, you may have a learning objective of having visitors learn why littering is bad in your park. Your behavioral objective may be to have the visitor not litter, and perhaps pick up litter they may encounter in the park and throw it in a trash can. But unless the emotional objective of having the visitor feel that littering is wrong and have an emotional commitment to not litter, the behavioral objective will probably not happen.

Get to the Point.

One of the biggest flaws in exhibit design is that there is usually too much information crammed into them. For exhibits to be more effective, each exhibit should have one or, at most, two main points or concepts to interpret. Those concepts should relate directly to the theme or "big story" for the whole exhibit room or gallery. Ask yourself; if the visitor only remembers one thing about this exhibit, what do I want that one thing to be? Make the presentation simple, with as little text as possible, and let the nonverbals (graphics, illustrations, photographs, etc.) do most of the work.

The Visitors and Exhibits.

Over the past few years of doing exhibit planning and working with many planning/design firms, there are several "truths" about visitors and exhibits that we have observed that will be useful to exhibit planners.

1. Visitors do not really like reading labels. If the label is over fifty words, it will probably not be read. (Exhibit labels are one of the few things we are asked to read standing up!)

2. Provocative headlines and graphics will draw attention.

3. If you can't get the main point across in about fifteen to twenty seconds, you probably won't get it across at all.

4. Visitors will be drawn to exhibits that have information or artifacts of intrinsic interest to them (relate).

5. Before you write the text/labels for an exhibit, ask yourself "why would a visitor want to know or remember this information?"

6. The average viewing time for a video/slide projection AV exhibit is about three minutes. If you plan a seven to fifteen minute AV program as part

of an exhibit, most visitors will not stay around long enough to watch the whole program.

7. If you can't fix it in-house with a screwdriver, consider carefully having high-tech exhibits. The maintenance costs will eat you alive.

8. Evaluate the exhibits to see if their objectives are being met. The visitors will tell you which exhibits they are not interested in through many unobtrusive means.

Summary.

An interpretive exhibit is a communication media that is designed to engage, excite, relate to, reveal to the visitor the essence of the topic or concept being presented. An interpretive exhibit must utilize Tilden's Interpretive Principles, and take into account learning, behavioral and emotional objectives, and an understanding as to how and why visitors learn and remember. An interpretive exhibit translates information from the technical or scientific language, to the "language of the visitor" (relate).

It was the goal of this paper to present some exhibit planning and design considerations that may help transform exhibits from an idea, to an effective interpretive tool that reaches into the visitors' imagination and mind, and leaves them with a desire to learn more. If these considerations are used, the exhibit will be more cost-effective (achieve its objectives), and an enjoyable recreational learning experience for visitors.

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AUDITING AND CRITIQUING INTERPRETIVE PROGRAMS: THE ONLY WAY TO GROW

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Interpretive program evaluations are the most important tool you have to improve the effectiveness of the interpretive activities you and your employees present.

"Practice will improve skill and experience will help one's competence, but only if there is feedback regarding the quality of the performance. If you don't find out how well you're doing while you are practicing and experiencing, your skill is not likely to improve."

Whether reviewing a "Homespun" or "High Tech" activity an effective critique can insure program quality by identifying themes and objectives, reviewing interpretive methods and techniques, checking for accuracy of information, and through a supportive discussion, challenge the interpreter to improve.

I'M BEING AUDITED!!!

In too many instances the thought of being audited brings about a negative reaction. Palms start sweating, heart rates increase, throats dry up, and everyone asks "What did I do wrong?" How many of us can relate every detail of our first evaluation? Chances are those who can had a poor experience. We remember everything the supervisor said was wrong. What about the things you did right? At the least, are we correct in stating that your first evaluation was indeed a "vivid" experience?

One reason that this activity is often viewed in a negative light is our choice of words, i.e. audit, critique and evaluate. We are not suggesting any new terminology, but think about those words for a minute, what are your definitions? Mr. Webster defines audit as "a methodical examination and review"; evaluate means to "examine and judge"; and critique is defined as "an act of criticizing" and "a critical estimate and discussion." Mostly negative connotations. Tell a new field interpreter that you will be critiquing their program that day and how do you think they will interpret it?

Our definition of auditing and critiquing (or program evaluation) is the process by which we guide the development of interpretive programs and evaluate their effectiveness; the process is a tool for personal and professional growth.

Perhaps the real explanation for interpretive program evaluations receiving a bad "rep" is the poor performance of the "evaluator". Supervisors either have not had training in conducting programs evaluations or are not taking the time to explain the purpose and procedures of critiquing to their employees.

WHEN DOES AN AUDIT START?

At the risk of being obvious, "at the beginning!" That doesn't mean the beginning of the campfire program or guided

walk. It means including a session on the process during orientation for new employees. providing them with copies and an explanation of standard evaluation forms, and the necessary training in interpretation and communications skills.

More specifically the program evaluation process begins when a program is conceived. What are the overall program objectives, where will the program be conducted, how long will it take, etc. This information should be documented by the supervisor and employee at the outset of the program. There should be no employee at the outset of the program. There should be no question about the auditor's expectations for the program.

WHAT DO YOU EVALUATE?

There are three parts to any interpretive program that must be looked at for successful improvement: the interpretive performance, the message, and the audience reaction. Put another way, we evaluate the methods and techniques, the program content, and the program objectives.

When evaluating the interpreters methods and techniques consider pre-activity contracts, public speaking skills (delivery), non-verbal communication skills, questioning, transitions, use of examples that touch on the experience of the visitor, and the speakers enthusiasm. After all, the visitor deserves a speaker who cares about them and the resource.

Is the theme clear? Does it appear that the speaker has really thought out and understands the message he/she wants to convey? The theme is the "heart" of the message or program content. Is the theme appropriate to the area? In addition be sensitive to the accuracy of the information, the overall program organization, the introduction (did it clearly lead into the theme, did it engage the visitor's interest, did it set the tone) and conclusion (did the speaker reinforce and summarize the main concepts and theme).

Finally, were the program objectives met. Was the theme relevant to the overall objectives? Was the "message" received? Observe audience reactions throughout the program. Did the speaker involve the audience, were children and special populations taken into consideration? What about the objectives, were they appropriate?

EVALUATOR TECHNIQUE

When auditing an activity, stay in the background. Go out of uniform. Do not give away your purpose to visitors participating in the activity.

Do not write when conducting the audit. Don't use a big clipboard and have the employee see you checking off items, writing, or taking notes. If you have to take notes, be discreet.

Stay out of the activity. If the interpreter invites you in or asks you a question that draws you into the activity, that's one thing. But you should not volunteer, or worse yet, take over the activity.

Finally, be discreet with your facial expressions. Don't allow your body language to communicate any negative feelings you may have about the activity.

HOW TO EVALUATE EFFECTIVELY

Bill Lewis' Evaluation Principles

1. Establish a supportive climate.
2. Reduce defensiveness by:
    a. listen well
    b. show empathy
    c. comments are spontaneous
    d. display feelings of equality with the person being evaluated.

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      e. comments should be provisional, not certain.
3.   Use small points to teach big principles.
4.   Share your personal feelings. Share early in the evaluation what you like about the activity.
5.   Be specific with your comments.
6.   Use positive language.
7.   Label the most important points.
8.   Allow the interpreter to be involved in the evaluation. It should be two way communications.
9.   Conduct the evaluation in a satisfactory environment.
10.   Discuss the evaluation as soon after the activity as is possible.

Consider the following thoughts as well when conducting an interpretive critique.

1.   Begin a critique by pointing out what you like about the presentation, and include a discussion of philosophy, of the principles involved.
2.   Try to remember that each person is unique. Try to discover each person's unique qualities to help that person maximize his/her potential. Discourage people from imitating other interpreters. Each of us has a unique style.
3.   Try to remember that each person is at a different stage of development, and go from there.
4.   Point out those items in a presentation which need improvement and give specific suggestions on how to improve. This includes reading, exercises, projects. Try to suggest new ways of looking at whatever is being interpreted.
5.   Avoid a critique that is laudatory only because none of us is perfect and all can improve.
6.   Be honest in your comments, avoid flattery; in the long run it doesn't pay to give false impressions. We each need to be positively reinforced, and if you feel positive about something, try to remember to share it.

PROGRAM EVALUATION BY INTERVIEWING

- As stated above, conduct the interview as soon after the program as possible, do the interview in a satisfactory environment.
The interview/evaluation should be confidential.

- Reinforce that the evaluation is to improve the activity and further the interpreters growth.

- Have the interpreter lead the evaluation by having her/him answer a series of questions.
    -What were your objectives?
    -Did you achieve all your interpretive objectives? If not why? Why do you believe you achieved your objectives?
    -What things were good about your activity? and/or what went well?
    -How would you improve your activity?
- Now share your personal feelings about what was good about the activity.
- If there is an area where the interpreter needs to improve, but he/she did not identify it - then you can bring it up.
- Summarize the specific areas where the interpreter needs to improve and discuss how you and the interpreter can both work on improving the activity. Indicate how you can help or where you want to help.
- Complete a brief written record of the good points of the activity and areas that need improvement. Indicate how you and the interpreter can make improvement. The interpreter can refer to the record for further development and the specific examples can be used for mid-season or other evaluations.

EVALUATION FORMS: "THE GOOD, THE BAD AND THE UGLY"

There are many standard evaluation forms, and as stated above they fall into several categories. The best approach is to collect as many styles of forms as possible, select the best components and design a form that works for you (the auditor) and more importantly, the interpreter.

Keep in mind the three parts of any activity that should be looked at: the methods and technique, the program content, and the program objectives.

Try to avoid a harsh numbering or rating system. One approach is to replace numerical or alphabetical scores with a range of smiling or sad faces. Another example we've seen rated the interpreter with an A-B-C-D or-F. Do we want the potential association with failure for a "D" or "F" rating?

Be sure that all the criteria are clear and mutually understandable. Leave space for written comments and narrative.

SELF-EVALUATION

The most obvious approach would be for the interpreter to review his/her performance on the same form as the auditor. Doing this after each presentation will refresh the interpreter's memory about the auditor's expectations.

One of the best techniques for improvement is to videotape your presentation. The camera doesn't miss a thing! Do this while preparing for your program or during the actual presentation. If logistics are a problem in setting up a video camera, a small audio recorder is the next best thing.

Other self-evaluation techniques include; asking a coworker or family member to attend your program (sometimes it is hard for them to be critical, but assure them you need their honest feedback) and finally, observing audience reactions. Are you held up for hours with questions after the program? Is anyone left at the end of your presentation?

TOWARD PROFESSIONAL EXCELLENCE

"Practice will improve skill and experience will help one's competence, but only if there is feedback regarding the quality of the performance. If you don't find out how well you're doing when you are practicing and experiencing, your skill is not likely to improve."

If is very easy to get caught up in the closed looped of preparation and presentation. Without adding the evaluation ingredient the circle will continue. Consider the purpose, techniques, and guidelines for program evaluation and "Spiral Toward Excellence."

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PROGRAM EVALUATION

School: _____

Date of Program: _____

Grade: _____

Program: _____

Please take a few moments to share your feelings about your class' experience at the Zoo. Return this evaluation to:

St. Louis Zoo Education Department
Forest Park
St. Louis, MO 63110

Part I: The Program

Directions: For each question, circle the number that most nearly reflects your judgement.

1. Why did you bring your class to the Zoo?

   5 — 4 — 3 — 2 — 1
   Primarily for the educational experience ... Primarily for the recreational experience

2. Did you have any specific curricular goals you hoped to accomplish with the program?

   Yes — No

3. If so, to what extent were these goals achieved?

   5 — 4 — 3 — 2 — 1
   Very well ... Not at all

4. How well did the presentation hold your students' attention?

   5 — 4 — 3 — 2 — 1
   Very well ... Not at all

5. How informative was the presentation?

   5 — 4 — 3 — 2 — 1
   Very informative ... Not at all informative

6. Was the information presented appropriate for your students' grade level and abilities?

   5 — 4 — 3 — 2 — 1
   Very appropriate ... Not at all appropriate

7. Was the instructor's presentation style appropriate for your students?

   5 — 4 — 3 — 2 — 1
   Very appropriate ... Not at all appropriate

8. How well organized was the presentation?

   5 — 4 — 3 — 2 — 1
   Very well organized ... Not at all organized

9. How would you rate this program overall?

   5 — 4 — 3 — 2 — 1
   Excellent ... Poor

Additional comments about the program:

Part II: General Information

1. What other field trips have your students taken (or will they take) this year?

   ___ Art Museum
   ___ History Museum in Forest Park
   ___ Museum of Westward Expansion (Arch)
   ___ Science Center
   ___ Missouri Botanical Garden
   ___ Other _____

2. How many times in the past five years have you brought a class to the Zoo?

3. Which of the Zoo's educational services have you taken advantage of in the past five years?

   ___ Classes
   ___ Zoo tours
   ___ Loan materials (slide sets, film)
   ___ Scavenger Hunts
   ___ Informational leaflets

4. What, if any, programs or materials would you like the Zoo to add to its educational services?

Additional comments:

CHARISMA AND CONTENT:
A COMPLETE TEACHING EVALUATION PROCESS
*Denny Olson

SITUATIONAL PERSPECTIVE
In ten years of interpretive work, the last five at a resident center which uses a dozen college graduate and undergraduate interns every quarter as a large part of its teaching staff, I have had ample opportunity to examine the growth of teaching skills in temporary staff. Each of our interns taught an average of sixty 3-hour classes during the quarter they were here. Because it was essential to ensure a good experience for the 10,000 resident school-children per year that we served (our funding came only from tuition, this writer developed an interest in helping prospective interpreters grow quickly into competent and dynamic teachers. Hence, an evaluation process.

Besides ensuring an attractive teaching staff for our center, the evaluation process served other important functions. Interns are often given "grunt work" and abused as free slave labor, when in fact they do internships to learn and polish their skills as interpreters. Our attention to their growth as teachers underscored a concern we had for them as individuals and it gave them a sense of their immense value to the institution. Each intern and their advisor received an impressive package of evaluation materials, including numerical graphs of their teaching growth, copies of evaluations done by visiting teaching staffs, a complete list of their classes taught and administrative accomplishments, and written evaluations by the members of our permanent staff.

All this, of course, took time. Two permanent naturalists worked half-time each on various facets of the evaluation process. The benefits have proven to be well worth the cost.

THE RULES
Evaluation is an intimidating word. Constant comparison to others conditions us to discomfort with evaluation processes- no one wants to fail.

Evaluation should serve to help individuals grow in their interpretation skills- therefore the individual him/herself should be the only goal- any other uses of the evaluation would probably be threatening.

Evaluations by professional staff or an audit by an outside expert (Roggenbuck, Propst 1981) are always subjective and susceptible

*Denny Olson, Earthlore, Inc., P.O. Box 228, Sandstone, MN 55072

to varying degrees of bias. However, other outcome-oriented techniques seldom get beyond a generalized "OK" or "not OK" in terms of specificity of areas which teachers can improve on. Why an instructor is doing OK or not OK is the realm of experienced evaluators. Evaluators and evaluatees both have bad days (sometimes together!) and all evaluations should be presented in this context.

Evaluation processes should be fair and non-threatening. Repetition of the idea that the evaluation process is confidential and solely for the benefit of the evaluatee is essential. All forms and comments should be recorded and given to the teacher/interpreter being evaluated. No copies.

Supportiveness is another key. "Suggestions" should be given freely with lots of honey. Words like "wrong", "weak", "bad", should be avoided. Simply suggest alternatives that you have seen done well. The evaluator's object should be growth, not a blanket edict on how the instructor rates.

Believability is best achieved by the evaluator's ability to demonstrate the problem and then demonstrate an alternative. If the evaluator can not do this, it is questionable whether respect levels of the evaluatee are high enough to achieve much accelerated growth through the evaluation process. Nothing is as phony as an inexperienced person pontificating. Credibility is non-existent in this situation.

After suggestions are made to the evaluatee, priorities should be established for work on these suggestions. It is impossible to work on more than a few areas at once, so this frustration can be avoided with a closing priority session.

Evaluators should treat problems, not symptoms. Unfamiliarity with the subject material will cause many symptoms to appear. Good teaching is an ecosystem of details- one area of weakness can drag others with it, changing the fabric of a teaching performance.

Attention to detail is essential. The primary advantage of being specific is that it makes teaching or interpreting less "instinctive" and gives opportunity for improvement to anyone willing to work at it, one small segment at a time.

THE COMPONENTS
Following is an excerpt from our Intern Handbook (Environmental Learning Center, 1980) which discusses each of the six points of a good teaching/interpretive performance. Some will apply to your interpretive situations and others will not. Keep in mind that the excerpts are geared toward a middle school level of student.

"1.) Delivery
    Voice Volume. Be aware of how well you are heard, but also be aware of how volume changes can control an audience and empha- size points.
    Voice inflection. Use inflections that you normally use on real people when you are excited about something. The affected "sing-song" type turns off students quickly.
    Voice pauses. Pauses should be used for effect- not to think of what to say next. Pauses should be filled with nothing. Let them hang in dramatic spots.
    Avoiding repetitive expressions. "Ah", "Basically", "OK", "Um", "You know", used as "fillers" add nothing and detract a lot. Kick the habits.
    Facial expressions. Combined with eyes, faces are expressive and dynamic. Be theatrical.
    Eye contact. This is your most powerful, expressive tool. Eyes can say anything that your mouth can (well, almost). They can control a class and emphasize important things.
    Hand gestures. They should be sparing and reflect what you are doing with your entire person. Paint pictures with your hands- don't just wave them around.
    Body language. Use posture changes to reflect a change in your tone or attitude. Above all, be relaxed and show it.
    Apparent confidence. Kids will take advantage of a lack of confidence on your part. Even if you are scared to death, fake it!

2.) Student Awareness
    Recognition of learner level. Undershooting is usually worse than slightly overshooting their level. Don't insult their intelli- gence.
    Fair in dealing with disruptions. Don't ignore a disruptive kid. Deal with him or her quickly and fairly. Then pretend it nev- er happened. Kids usually respond well to a clean slate.
    Calm in dealing with disruptions. Don't let bad behavior or an interruption fray your nerves. Some kids will enjoy making you "lose your cool". You are in control- of them and of you.
    Effective in dealing with disruptions. If two kids talk, move one. If you are near disruptive noise, move the class. If the sun glares on the chalkboard, close the shades. Make sure your dealings with discipline and disruptions work to prevent further occurances.
    Anticipate need to define. If you ever get to a word or concept kids may not know, define it. Carefully examine their faces for re- actions to questionable words. Take nothing for granted.
    Anticipate need to restate. The more ways you can say something, the more kinds of minds you can reach. Take some time on difficult concepts.
    Answering questions. First, answer the question which was asked- not the one you want to answer! No question is a dumb question. Don't ever be afraid to say "I don't know, but I'll try to find out for you".

Handling teachable moments. If a duck flies by, and a peregrine falcon dives at 200 miles per hour and kills it in the air, don't feel obligated to ignore it! Life is a series of pleasant interruptions- take advantage of them.

Indoor control of students. Position yourself and the class so you can see them. Good discipline is anticipating a problem before it happens, shifting gears to re-engage their interest and being constantly aware of the class. Read them well.

3.) Effect on Students

Instructor's energy level. Get buzzed up! Your excitement level will be the excitement level of the class.

Rapport with students. Be a nice person, but a firm nice person. If they like you they will also like the things you are excited about, but don't go overboard on being liked. Be concerned enough to clamp down on kids when necessary. Learn their names, for rapport and for discipline.

Monologue-activity balance. Kids have short attention spans. There are two ways to deal with this. One is to be entertaining as you talk, and the other is to have periods of activity by the kids breaking up your monologue. Don't talk for an hour and a half straight- you'll lose them fifteen minutes into your speech.

Logical progression of ideas. Organize your class so the progression of concepts builds upon the previous information. Use transitional sentences to link what you just said to what you will say. In environmental education, it should be interconnected.

Clarity of explanations. Be clear. Use understandable language and make sure kids know what you want them to know. Your job as instructor is to have them know something they didn't know before the class.

Affected senses. They won't forget how a leaf looks if they also know how it smells and feels. Involve all of their senses.

Affected emotions. Kids have no trouble learning if you make information unforgettable. Emotions- sadness, happiness, fear, anger- make things rememberable. Make them feel as they learn.

Affected sense of humor. Unless you are a "natural", you will want to plan your one-liners into the class. Laughter is a good "waker-upper" and rapport builder.

4.) Process

Opening. How do you grab and demand their attention? Do something unique to begin the class.

Clarity of objectives. Unless you have deliberate surprise tactics, it's helpful for the class to know what will happen during the class period. Make your expectations clear.

Continuity of objectives. Do you follow your own expectations?

Use of time (pacing). Keep things crisp and moving. Extablish a rhythm and resist things which will negatively affect it.

Evaluation of students. Use leading questions to evaluate their progress- as you go. Read faces to evaluate their reactions to new

information. If you aren't sure they understand, restate, redefine and don't leave it alone until they do understand.

5.) Techniques
Have students observe, measure, compare, interpret, and summarize. The first two are easy, the third harder and the fourth and fifth are difficult to facilitate. Let them do the interpreting and summarizing, but you start them to the right answers- with subtlety.

Leading questions. Good questions direct the kids to correct conclusions and help you evaluate their progress. Don't do everything with questions, because the pace will crawl and you won't get very far into your outline. If they don't answer immediately, restate the question in an easier way, or divide it into two logical questions leading to the same answer. Avoid open-ended questions like "How do you feel about that?" Some kids are too shy to elaborate and get shyer when you put them on the spot.

Games. Use your creativity here, but avoid embarrassing competition between individuals.

Analogy. Relate the things you teach to events from their everyday lives.

Story telling. A good story is rememberable, and therefore lessons in stories are too. They are a good tool, but take some thought.

Role playing. This is a great tool for breaking up your monologue and involving the class. If you want them to learn about a compass, have them be one!

Communications skills. Having them do art or writing is often a good method of student involvement.

Collecting. If every kid collected one thing from the woods around the ELC, there would already be nothing left. Temporary collecting, which doesn't injust living things, is the only recommended kind.

Mechanical skills. The three-dimensional aspect of learning a skill makes demonstrations preferable to explanations.

Outdoor arrangement of students. Gather them close to you before you talk. Speak to the kids in the back row- the ones in front of you are already interested. Keep them together on the trail so you don't have to wait forever when you want to talk. Let no one get ahead of you. You know where you are going, but they don't.

Outdoor frequency of learning experiences. Strike a balance between walking and stopping to talk. Exercise their minds and bodies equally.

Outdoor control of students. Lay down your rules of conduct before you go outside. The outdoors is totally different than four walls and a ceiling. Distrations are everywhere, so demand and keep their attention.

Chalkboard. Concentrate on drawing pictures instead of writing words. Everything can have visual reinforcement, and the chalkboard is the key. Be aware of window glare. Arrange students to the right

side of the room if you prefer working from the left side of the chalkboard, and vice versa.

Audio-visual. Know how to use your equipment and set it up before the class begins.

Props. These are things the students can hold, smell, and see, to reinforce facts and concepts. If you pass things around, be aware of their potential as a disruption.

Outdoor sites and objects. Pick the best place or object to illustrate your ideas.

Equipment explanations. Demonstrate first, then have them talk you through the same procedure. Make intentional mistakes and have them correct you. Always use safety equipment.

6.) Content

Knowledge of subject. Know the information well. Your knowlegde will affect every other part of the evaluation process.

Choice of information. Include information that is relevant and understandable.

Integration of disciplines. Relate the chemistry of a subject to the biology, physics, ethics etc. of that subject. This is what environmental education is all about. Tie everything together.

Number of concepts. Don't overwhelm them. Don't underwhelm them.

Number of facts. Up to a certain number of facts, a class will be sketchy and vague. Beyond a certain number of facts, students won't retain the information. Find a happy medioum.

Use of ethics and values. Why is this class important? Can it help or harm our natural environment? How? Our job is to teach people how to treat our planet. Don't ignore this part of your presentation, it may be the most important.

Consistency with ELC philosophy. All ELC classes should relate to the Center's goals. Look on page 1 in the Planning Guide and Curriculum."

SUMMARY

It will be impossible for evaluatees to concentrate on all of these things at one time. The should work on the ones which don't come naturally for them, a few at a time. Becoming a competent and confident interpreter is nearly always easier with help.

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A COST ANALYSIS APPROACH FOR EVALUATING INTERPRETATION

Colleen F. Morfoot

Douglas M. Knudson*

ABSTRACT

Interpretive programs in Indiana recreation areas were analyzed in terms of cost effectiveness criteria. The analyses revealed differences in costs among types of activities. There were not significant differences among federal, state, and local agencies. Activity costs per visitor contact hour varied from $.18 to $.70. The method also produced time budget analyses and study of factors affecting attendance.

INTRODUCTION

How can interpreters maximize benefits for visitors with limitations in cost and personnel? There is a need for agencies to determine the best use of interpreter time, the best types of programs, times, locations, and advertising techniques (3).

Cost accountability is proposed as a partial tool for within-agency evaluation. It provides a start toward an achievable, objective framework for program evaluation. Consideration of agency goals, values of programs to individuals, and benefits as compared to other activities are necessary for final evaluation.

In this study interpretive costs are measured in terms of visitor contact hours. Visitor contact hours are the number of visitors attending a program multiplied by the length of the program. Comparisons in terms of money and time costs are made among interpretive programs.

This study does not involve estimates or use of the benefits. It measures and compares only the major portions of the actual dollar costs per visitor contact hour. The reader is cautioned to interpret this as a partial tool. It is to be used in conjunction with the administrator's estimates of the benefits of outputs to make fair judgements.

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The assumption should not be made that a visitor contact hour in one type of interpretation generates user benefits equivalent to those from another type of interpretation. Before a manager or administrator makes any use of the figures discussed in this paper, estimates of the relative benefits generated by different types of programs should also be considered. For example, assume that values of the benefits of hikes and audio-visual presentations could be estimated as 2.0 and 1.0, respectively. Then the cost per visitor hour of hikes could be divided by 2 to make it comparable to AV programs in terms of equivalent benefits.

LITERATURE REVIEW

Cost evaluations in interpretive programming have been only recently proposed (9). However, methods of cost and benefit analyses have been a part of resource planning for a number of years (1). Benefit-cost analysis originated in the early 1900's as a means to justify development of water resource projects (6). Cost effectiveness analysis was an outgrowth of this method (8).

Fabrycky and Thueson (2) identified two approaches to cost effectiveness studies: fixed-cost and fixed-effectiveness. In the fixed-cost approach, the basis for selecting the best alternative is the amount of effectiveness obtained at a given cost. In the fixed-effectiveness approach, a set of alternatives that provides the same service are compared on the basis of cost. A third approach, objective level studies, measures costs of achieving several performance levels of the same objective (6).

Recently, cost effectiveness has been recognized as a tool for recreation valuation (4). Its use is limited; it was difficult to make economic sense, for example, by comparing "number of swimmers served per dollar of expenditures on beaches with number of cross-country skiers per dollars worth of trails provided." Cost comparisons among similar activities are possible, using the contact hour unit, defined as one hour of contact with some outdoor recreation resource (11).

Attendance is a key variable in cost effectiveness analysis. Recent studies of attendance at interpretive programs have been conducted in Indiana state parks (5, 10). They identified methods to measure the proportion of park attendance at interpretive programs, and factors that influence participation rates at interpretive activities. A comprehensive cost effectiveness evaluation of interpretation was conducted in Indiana recreation areas (7).

METHODS

Indiana recreation areas that participated in the study included two federal areas, eleven state parks, and five local areas. During the summer of 1977, interpreters recorded preparation, performance and travel time for five visitor activities: hikes, talks, audio-visual shows, Junior Naturalist programs, and

special activities. They also recorded the time of the activity, attendance and weather information, including temperature and precipitation. For the remaining five interpretive functions they recorded total time devoted to the activity each day. These were: mass media interpretation (radio, television, news articles); nature center duty; and three support duties, administrative, planning, and professional time.

From some parks, interpretive costs were not separable from a total departmental parks and recreation budget. Therefore, costs per visitor contact hour were based on salaries and wages of personnel. These comprised nearly 80% of each sponsor's interpretive budget.

Cost per visitor contact hour was calculated for each visitor activity using the following formula.

$$\text{Cost/VCH} = \frac{\text{Total Hours (each activity) X Interpreter Wage/Hour}}{\text{No. of Visitors at Each Activity X Performance Time}}$$

An analysis of covariance was run to determine if (1) the type of activity, and (2) the agency level (federal, state, local) had an effect on cost/VCH. Three covariates in the analysis were attendance, preparation, and performance time. (Travel time was not entered because it was a very small time factor.) Extraneous variation caused by these factors was removed in the analysis, thus increasing measurement precision.

Data from eleven state parks allowed for further comparative analyses of the state park naturalist program. T-tests were run to test for differences in cost per visitor contact hour between permanent and seasonal naturalists. An analysis of variance was also run to test for differences in cost per visitor contact hour among the five activities. Additionally, weather and temporal factors were evaluated for their influence on activity attendance.

RESULTS

Results of the covariance analysis showed that the type of activity had a significant effect on cost per visitor contact hour (p = .05), but that sponsor did not. Of the covariates, attendance and preparation showed significant relationships with cost per visitor contact hour. The variation caused by the covariates added to that of the independent variables accounted for 76% of the variation in cost per visitor contact hour.

There was a significant difference in cost between the naturalists at only one park, where cost of the permanent naturalist was $.30/VCH higher than the seasonals.

An analysis of variance showed significant differences in cost/VCH among the five visitor activities. The Duncan Multiple

Range test was therefore used to determine where cost differences might exist. Cost per visitor contact hour for Junior Naturalist programs and hikes were each higher and significantly different from all other activities. Junior Naturalist programs were most expensive at $.70 per visitor contact hour (VCH), followed by hikes at $.36/VCH. Talks, audio-visual, and special programs varied between $.18/VCH and $.20/VCH.

Among the three sponsors there were large differences in how interpreters spent their time (Figure 1). Time management analysis indicates that federal parks devoted nearly three-fourths of interpretive time to nature center duty. State parks spend most time in activity programming (42%). Indiana state park naturalists presented a highly activity-oriented program while federal areas managed a more sedentary type of program. Local parks, a few with relatively new interpretive programs, devoted a large portion of time (38%) to support duties. State and local interpreters spent about five percent of their time producing newspaper, radio, and television interpretation.

Weather and temporal factors were found to affect attendance. Rain or temperature greater than 90°(F) decreased attendance at most activities. Attendance increased throughout the day with nearly 50% occurring after 5:00 p.m. Three-fourths of evening programs were talks and audio-visual shows. Hikes and Junior Naturalist programs were offered most often in the morning, while hikes, talks, and audio-visual shows comprised most of the after-noon activities.

DISCUSSION

Visitor contact hours provide an objective measure of inter-preter output. However, the purpose of the cost measure is not to compare benefits among different types of activities. With VCH data, collected over a period of time, target levels or ratios of output can be determined for various types of activi-ties.

Cost evaluations can be used as guides to compare alterna-tives for conducting a total interpretive program. They are not intended as a tool to find the least expensive method to present an interpretive topic. Each park has its own characteristics, visitor patterns and facilities that affect attendance and costs. Program mix can be modified based upon the information. For example, does a hike or a slide presentation attract more people (lower cost/VCH) at a certain time of day? The important goal for parks is to maximize visitor benefits at available funding and personnel levels.

Interpretive time management study complements cost effec-tiveness analysis. Misallocation of effort hinders program output and quality for visitors and may increase costs. With a time budget administrators can analyze the program in terms of agency goals and objectives. For example, should activity

programming be increased? Should more visitors be reached by visitor center contacts? What is an adequate time allocation for support duties?

Physical and temporal factors provide information for program management. Program flexibility to deal with periods of high heat or rain is important. Notices that the activity will continue "rain or shine" or that alternate indoor activities are scheduled may increase attendance and thus lower costs per visitor contact hour.

SUMMARY

Cost effectiveness analysis provided the economic framework for a partial evaluation of interpretation programs in Indiana recreation areas. For federal, state, and local areas, interpretive activities, personnel, and time management were evaluated for their contributions to a high-quality, cost effective program.

Significant differences in cost were found among activity types but not among the three sponsors. Time management by interpreters was quite different among the three types of agencies, however. The small number of sponsors may account for the lack of statistical significance.

Attendance is a key factor to cost effectiveness of programs. Weather and temporal factors were found to affect attendance. Nearly 50% of attendance occurred after 5:00 p.m. As temperatures rose above 90°(F), attendance at all activities decreased.

Cost effectiveness evaluations were possible among activities, across agencies, and within the Indiana State Park system. This method however, is designed only as a partial framework of interpretive evaluation. Other factors of evaluation include agency goals and subjective values of activities; these must be evaluated by interpreters and knowledgeable administrators.

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Introduction

This handbook is for Forest Service interpreters who want to evaluate the effectiveness of their interpretive services -- guided walks, talks, publications, exhibits, and so on -- as part of a continued effort to improve them. The handbook includes four sections. It begins with a brief introduction to evaluation, followed by a section on preparing to evaluate. The third part discusses a few important issues related to conducting meaningful and useful evaluations, and the last section offers a step-by-step guide to conducting evaluations, using four different evaluation techniques. Each of these techniques is designed to be practical, inexpensive, and useful to field interpreters without specialized equipment or training. In addition, they do not require special approval by the Office of Management and Budget.

Evaluation Questions

This approach to evaluation is based on the premise that the overall goal of interpretation is to provide visitors with information in order to enhance their enjoyment and encourage safe, careful use of forest resources. Therefore, to evaluate the effectiveness of interpretive services, we could answer one or more of the following questions:

1. Do visitors **enjoy** interpretive services?
2. Are visitors **learning** from interpretive services?
3. Do messages about safe, appropriate use of forest resources have the desired effect on visitor **behavior**?

These three questions address the three possible objectives of interpretive services that we'll be focusing on in this handbook:

Enjoyment

Learning

Effect on Behavior

Section 1: An Introduction to Evaluation

Why evaluate? The primary reason for evaluating interpretation is to improve it. Another reason to evaluate is to determine the value of interpretation in the management program. Evidence of the effectiveness of interpretive services may be an important factor in budgetary decisions.

What is evaluation? Simply stated, evaluation ascribes value to something, be it an object, an action, or an interpretive program. For the purposes of this handbook, interpretive evaluation is a way to determine qualities, identify strengths and weaknesses, and answer questions about effectiveness, all with an eye toward *improvement*.

There are many different approaches to evaluation. *Quantitative* techniques involve numbers and in some cases the statistical analysis of those numbers. *Qualitative* methods involve verbal descriptions and impressions. Both quantitative and qualitative techniques are described in this handbook.

As mentioned above, the techniques in this handbook are designed to be useful and easily applied by field interpreters without previous experience or training in social science research. These techniques are not controlled experiments which can link cause to effect with absolute certainty. In other words, although an evaluation may find that visitors are able to state a certain fact after attending an interpretive program, we cannot be certain that they actually learned that fact from the program rather than from some other source. Nevertheless, if the goal is to improve interpretive services, the information gained from applying these techniques will be useful and valuable.

Section 2: Preparing to Evaluate

I. Preparing for Quantitative Evaluations

Identify Objectives.

Quantitative evaluations should be based on the specific objectives of an interpretive service. By comparing a program's objectives with its outcome, evaluation can help answer the question "did this program accomplish what it was intended to accomplish?" Think of objectives as a specific measurement on a yardstick, and an interpretive program as a young tree. Suppose we wish to monitor the health of the tree by measuring its height. If we know, ahead of time, that the tree is healthy if it measures two feet by a certain date, then our measuring efforts are useful and informative. On the other hand, if we don't know how tall a healthy young tree should be, then our measurement will not tell us much about the tree's health.

So it is with evaluations and objectives. Clearly stated objectives not only guide and direct us as we prepare an interpretive activity, design an exhibit, or produce a brochure, but they are crucial to the usefulness of evaluations that attempt to answer questions such as "what?" "how many?" "how long?" and so forth.

The clearest, most easily measured objectives for quantitative evaluations are *performance objectives*. A performance objective states what visitors should be able to *do* as a result of the interpretation, and *how many of them* (or what proportion) should be able to do it. The quantitative techniques in this Handbook evaluate learning and effect on behavior, and are based on the following format for writing performance objectives. [1]

Learning:

At least __% of the participants *will be able to state* specified facts or ideas that were presented by the interpretive service.

Behavior:

At least __% of the participants *will engage in* (*or not engage in*) specific behavior(s) after experiencing the interpretive service.

Here are some examples of performance objectives to evaluate learning and behavior.

1. After attending the campfire program, at least 50% of the visitors will be able to *state* at least one of the benefits of forest fire.

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[1] To quantify enjoyment would require methods beyond the scope of this handbook. Therefore we will describe a qualitative method to assess enjoyment.

2. At least 50% of the visitors who take the meadow trail will *read* the trailhead exhibit about fragile meadows.

3. At least 50% of the visitors who read the trailhead exhibit about fragile meadows *will not leave* the designated trail.

Although these examples state that 50% of the visitors will meet the learning and behavioral objectives, this proportion is arbitrary and would vary depending on whether we had information in advance on what to expect. Often, establishing this quantitative aspect of performance objectives depends upon information that can be gained by conducting follow-up evaluations.

The Importance of Follow-up Evaluations

Suppose we wanted to measure our young tree to determine its health, but without knowing how tall the tree *should* be. Would it be useless to measure it? On the contrary, we have to begin somewhere, so our first measurement would establish a baseline. If we then provided the tree with various amounts of water and nutrients, we could periodically measure it until we found the right conditions for optimum growth. The next time we measured a young tree we would have a better idea of how tall a healthy young tree should be.

So, in setting quantitative objectives for an interpretive service that has never been evaluated (or in the absence of advance information), we might *arbitrarily* begin with an objective of 50 percent. The first evaluation would then establish a baseline figure. Say the results showed that 50 percent of the visitors were learning what we had intended (see Figure 1). Although we were meeting our 50 percent objective, we might find ways to improve the program, then set our objective to specify that more than *55 percent* will learn the intended information the next time we evaluate this service. We would then repeat the evaluation. Each subsequent evaluation is like a new measurement and would tell us if we had *improved* in relation to the previous evaluation. Here we assume that the visitors included in one evaluation are not substantially different from those in subsequent evaluations.
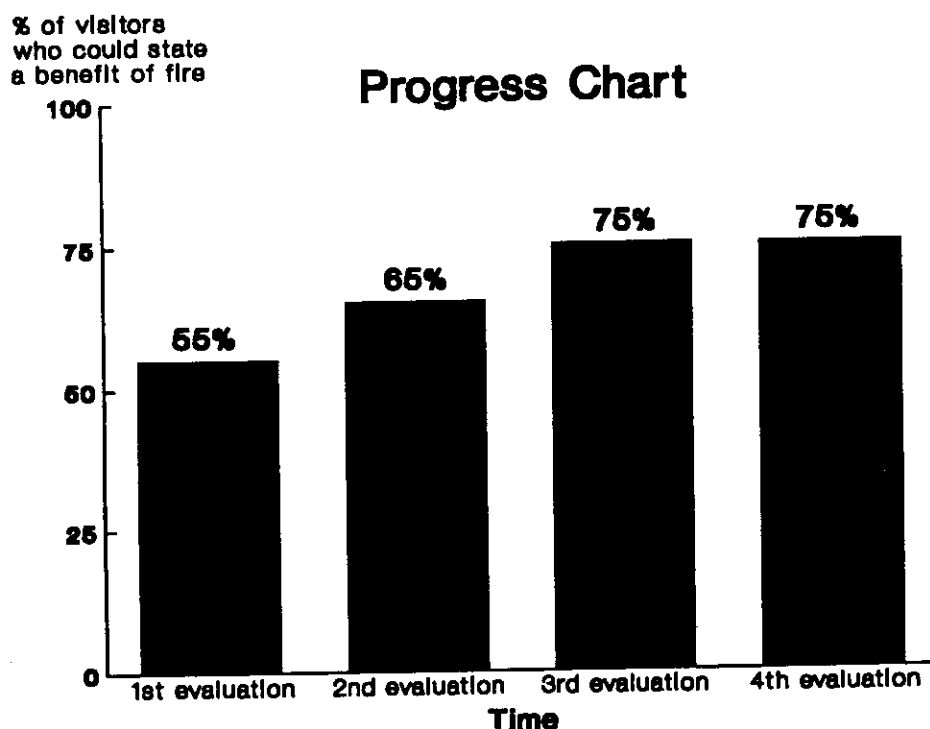
Figure 1: Charting follow-up evaluations.

In this way, repeated measurement allows us to chart the progress we are making. As the interpretive service improves, the results of our evaluations may eventually level off, giving us a much clearer idea of how high to set our objectives.

II. Preparing for Qualitative Evaluations

Qualitative evaluations are not based on quantitative objectives. The qualitative technique described in this handbook -- the Group Interview Technique -- does not answer questions such as "how many?" and "how long?" Rather, it answers questions about enjoyment, perceptions and attitudes. It provides us with insights into visitors' experiences from *their* perspective.

Qualitative evaluations may reveal things that objective-bound quantitative methods might miss, such as the *unintended outcomes*, both positive and negative, of an interpretive service. For this reason, qualitative methods are often used to complement quantitative ones.

Although the Group Interview does not rely upon performance objectives, it does rely on stated interpretive *themes* if the technique is being used to find out what visitors learned from an interpretive service. A theme is the key idea of an interpretive program, exhibit, or message. It is the main point that we want visitors to grasp. As

with performance objectives, clearly stated themes help guide the design of interpretive services. We ask visitors what they learned from an interpretive service, then compare their responses to the theme, the service's intended message.

Since qualitative techniques do not result in numbers, we would not use them to chart our progress numerically as with quantitative techniques. Instead of comparing numbers we compare qualitative data -- our impressions of what visitors liked or learned based on their verbal responses. The improvement of interpretive services in response to visitor input should be reflected in subsequent evaluation results.

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Section 3: A Few Important Issues

Before discussing specific evaluation techniques, there are a few important points concerning the way the evaluation is conducted which will determine how meaningful and useful the results will be, especially when a quantitative technique is used. These are 1) precision, 2) consistency, 3) sampling, 4) generalizing and 5) assumptions about evaluative criteria.

Precision

Precision is an issue that all evaluators face. A precise yardstick, for example, is exactly three feet long, and each division mark is exactly in the right place, down to fractions of an inch. So if a tree is 2 feet, 3 1/2 inches tall, and we measure it with the yardstick, our measurement should read 2 feet, 3 1/2 inches.

Similarly, when evaluating an interpretive service, our evaluation technique (the yardstick) must be precise in order to produce valid results. How precise must it be? In the case of the tree measurement, knowing its height to the nearest 1/2 inch was precise enough for our purposes. More precision might require a different, more expensive measuring technique and perhaps more time and effort, but would not produce more useful information. Our goal is to obtain results that are precise enough to yield usable information in a timely, practical manner. In our case, "usable" means that the information an evaluation produces gives us some indication of how to improve our service to visitors.

Consistency

Consistency is also an important issue. Returning to our tree measurement analogy, if two or more different people each used the same yardstick to measure the tree, both should come up with the same height of 2 feet 3 1/2 inches. If the yardstick is consistent, it shouldn't shrink or stretch between readings. So if two different evaluators independently use the same technique to evaluate the same interpretive service, and their results are the same, that technique is consistent and the results are reliable.

Sampling

Sampling is a third evaluation issue to consider. If we had ten acres of young trees and wanted to know their average height, rather than measure hundreds of trees we could measure a sample of trees and compute the average. In selecting our sample it would be important to choose trees *randomly* and to measure the same number of trees from each acre. This is because some acres might have different growing conditions and therefore taller or shorter trees than others, thus raising or lowering the average. If each acre were *equally represented* in our sample, the average height of the

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sampled trees would be representative of the average height of all the trees within the ten acres.

Evaluators must also be careful samplers. For example, when observing visitor behavior, such as the number of people who stop to look at an exhibit, it is very important to select a sample that is representative of most visitors. Quantitative evaluation techniques require systematic sampling procedures. First, one must decide how many visitors to sample. If you are evaluating a personal interpretive activity such as a walk or talk, refer to Table 1 which suggests sample sizes for different audience sizes. These sample sizes will produce results that are representative of the entire audience, with an error margin of plus or minus 1%.

TABLE 1

Sample Size Guide for Evaluating Personal Interpretive Services

Audience size	Sample size (individual adults)
1 - 40	entire audience
41 - 50	28 - 33
51 - 60	33 - 37
61 - 70	37 - 40
71 - 80	40 - 44
81 - 90	44 - 47
91 - 100	47 - 50
101 - 150	50 - 60
151 - 200	60 - 67
201 - 250	67 - 75
251 - 300	75 - 80

Source: Schaeffer, R., Mendenhall, W., Ott, L. 1986. *Elementary Survey Sampling.* Boston: PWS-Kent Publishing Co.

If you are evaluating an exhibit or other nonpersonal interpretive service, you could select a sample of time periods and apply your evaluation technique to every visitor within those time periods, or sample visitors within time periods. Sampling procedures are clearly described for each evaluation technique in Section 4.

Generalizing

Evaluators must consider the extent to which their findings can be applied to other situations, that is, the generalizability of their results. Sampling and generalizability are closely related. Using our tree example again, if our sample is representative, we can say that the average height of the trees within the ten acres is two feet, 3 1/2 inches; that is, we can generalize our results to those ten acres. However, we cannot generalize to the surrounding 100 acres, because they were not sampled.

Similarly, if we want to know how many visitors are reading the exhibit but we only make observations on Sunday mornings, our results only apply to Sunday morning visitors (unless we have reason to believe that visitors who come on Sundays are no different from visitors who come on other days). In any event, our observations will only tell us about the exhibit in question, not about other exhibits.

Some evaluations are based on feedback from visitors who *volunteer* to give it to us, rather than those who are selected at random. Because volunteers may have extreme opinions (both positive and negative), they may paint a different picture of an interpretive service than visitors who are selected randomly to participate in an evaluation. Keep this in mind, and always be conservative in making generalizations from evaluation results.

Making Assumptions

Any evaluation may require us to make some assumptions related either to the criteria we are using, our procedures, or both. In this handbook, at least four sets of assumptions apply.

1. To assess enjoyment, we make the assumption that if visitors tell us they enjoyed something, then they did.

2. Learning is defined here as short-term recall. In other words, if asked immediately after experiencing a program, what will visitors say they learned from it?

3. We make two assumptions about visitor behavior: 1) that we can interpret observed behavior, and 2) that the behaviors that interest us can be attributed, at least in part, to interpretive messages received. Although it is true that many visitors would engage in desired behaviors whether or not they received the message, trying to determine which visitors are which would require evaluation methods that are more complex and more costly.

4. We assume that our three interpretive outcomes build on each other in a sort of hierarchy (Figure 2). If visitors enjoy a particular interpretive service, such as a guided walk, it is more likely that they will pay attention to the interpreter and learn something. Continuing up the hierarchy, learning important information may lead to desired behavior (unless visitors are not already engaged in desired behavior).

5. We assume that unless an interpretive service is specifically designed for children, then it is aimed at adults. For our purposes an adult is anyone who appears to be in their teens or older.

A few other assumptions specific to the evaluation techniques will be discussed with each technique.

Interpretive Objectives

Behavior

Learning

Enjoyment
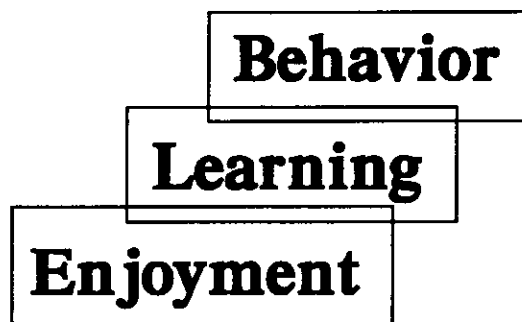
Figure 2: A hierarchy of interpretive objectives

Section 4: Evaluation Techniques

This section describes how to use four different techniques to evaluate interpretive services. The objectives of an interpretive service will help determine the type of evaluation technique to use. Figure 3 represents an overview of the evaluation process. The way to improve interpretive services is to 1) identify the performance objectives and theme; 2) select an evaluation technique, using the Evaluation Technique Guide (Figure 4); 3) apply the technique to the interpretive service; 4) compare the results of the evaluation to the objectives or theme; and 5) make recommendations for improvement.

The Evaluation Process:

The Way to Improvement

5. Make recommendations for improvement

4. Compare results to objectives

3. Apply technique and obtain results

1. Identify objectives or theme

2. Select evaluation technique
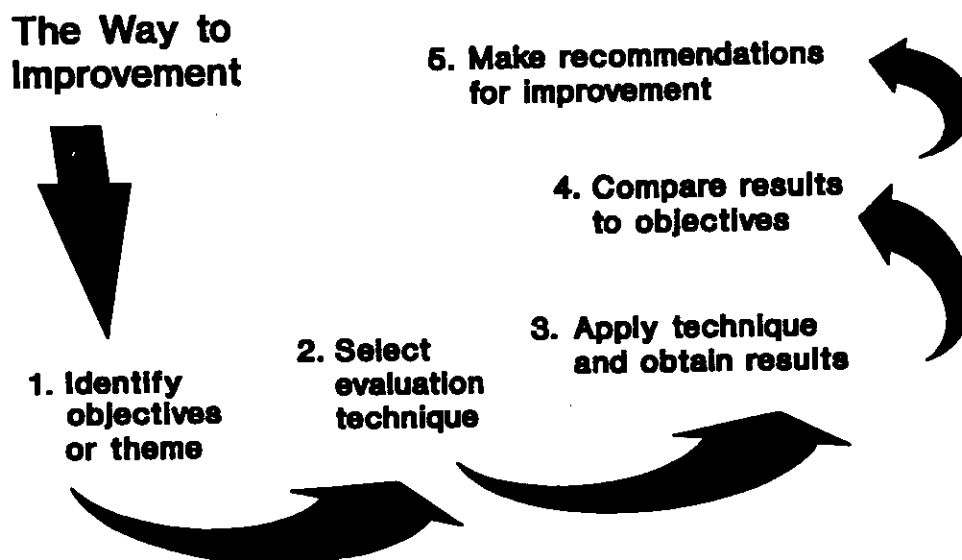
Figure 3: The evaluation process

The following chart provides a guide to selecting which evaluation technique to use. There are two factors involved in making this decision. First, what type of interpretive service is being evaluated -- is it personal (activities presented by an interpreter), non-personal (self-guided activities, exhibits, etc.) or a written text (publications, exhibit texts, signs, etc.)? Second, are you interested in what visitors are learning from an interpretive service, what they enjoy about it, or how they behave in response to it? Once you have answered these two questions use the guide in Figure 4 to select an evaluation technique.

Evaluation Technique Guide

Type of Interpretive Service	Objectives		
	Enjoyment	Learning	Behavior
Personal Guided walks, talks, etc.	Group Interview	Group Interview Response Card	Observation
Non—personal Self—guided activites, exhibits, etc.	Group Interview	Group Interview Response Card	Observation
Written Texts Publications, exhibit and sign texts	Readability Analysis Group Interview	Group Interview	

Figure 4: A Guide to selecting an evaluation technique.

The following is a brief description of the evaluation techniques. A step-by-step guide to using each technique will follow.

1. **Response Card Technique**: a method in which individuals report what they learned from an interpretive service they have experienced. This approach is quantitative. Visitors can be randomly selected to receive the cards, which allows us to generalize to other visitors that experience the same interpretive service.

2. **Group Interview**: a qualitative technique that uses group discussion and interaction to gather opinions and feelings. The value of group interaction is that visitors are prompted to voice ideas they may not be able to articulate on their own. In addition, they can elaborate on those ideas, providing greater depth of information.

3. **Observation**: an unobtrusive way to collect information about visitor behavior in response to interpretive messages. As with the Response Card Technique, this is a quantitative method. Visitors to be observed can be randomly selected, allowing generalization.

4. **Readability Analysis**: a numerical system for determining the readability of texts, such as publications, exhibit texts and sign texts. Here we make the assumption that if an interpretive text is to be enjoyed, it must be easy and interesting to read. This is a quantitative approach that does not rely on visitor input, and we recommend that it bu used in conjuction with a technique such as the Group Interview.

Although the techniques differ, there are three principles of evaluating interpretation that should guide your use of each:

1. Evaluations should not be bothersome to visitors. Visitors come to national forests to recreate, to be with family and friends, and to enjoy themselves. Evaluating their experiences should in no way have a negative impact on those experiences. Visitors who agree to participate in evaluations deserve our respect.

2. No evaluation should be conducted unless its results are intended to be used. Evaluations require valuable time and effort on the part of visitors and staff. In some cases they require expenditures for materials. If conducted, they should be used to improve interpretive services.

3. Generally, an interpreter should not administer or supervise an evaluation of his or her own program or product. It is best to appoint a neutral employee.

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Evaluation Technique 1
Response Card

      This technique invites visitors to report what they learned from a personal or nonpersonal interpretive service, excluding publications and other texts. A response card is used that consists of a brief statement and space for written comments.

Materials required:
8 1/2" x 11" card stock (stiff, heavy-weight paper)
Pencils

How to do it:

STEP 1. Identify the performance objectives.
      The response card technique is appropriate for objectives related to learning. Objectives should be measurable and quantitative. (Review Section 2: Preparing to Evaluate.)

STEP 2. Design the response card.
      Design the card so that its dimensions are 5 1/2" x 4 1/4". This allows four cards per sheet of 8 1/2" x 11" card stock. Keep the design simple and clear. The less cluttered it appears, the more appealing it will be, and the more information you'll collect.

STEP 3. Add the text.
      The text is a brief invitation to participants to comment specifically on what they learned from the interpretive service and how it could be improved. The more specific their comments are, the more useful they will be. Include instructions on how to return the cards, and thank them for their comments. Here is an example.

Example:

We'd like to know what you learned from this program *(walk, exhibit, etc.)*. We appreciate your participation!

Title of service: *(the evaluator fills this in ahead of time)*
Date: *(the evaluator fills this in ahead of time)*

Please fill in the sentence:
"Forest fire can benefit a forest by. . .

Please return this card to the ranger, the visitor center, campground registration booth, or any entrance station. Thank you!

Notice that respondents are asked to state "the benefits of forest fire." This is because our performance objective was that a certain percentage of visitors should be able to do this following the interpretive service.

STEP 4. Print the cards.

STEP 5. Establish a sampling plan and distribute cards and pencils.

The sampling plan is simply a plan to ensure that the visitors who receive cards are representative of the visitors we want to know about. If you are evaluating guided walks or stationary programs, the number of cards to distribute, i.e., the sample size, depends on the total number of visitors attending the activity. The "Sample Size Guide" (see Table 1 in Section 3) provides sample sizes. Sampling approaches for exhibits and self-guided activities are described below.

Decide ahead of time how to select visitors to receive cards so that each one has an equal chance of being included in the evaluation. How to distribute the cards and pencils depends on the type of program.

Guided walks or tours

Guided walk participants may not want to be encumbered during the walk, and it would be easy enough to distribute the cards at the end. The evaluator introduces him/herself to the walk participants after the interpreter's conclusion and briefly explains the purpose of the evaluation, emphasizing the importance of each visitor's comments. He/she then hands a card to as many adults as prescribed by the Sample Size Guide. (For most guided walks, the entire audience will be included in the sample) The evaluator then collects the cards and individually thanks visitors for their participation.

Distributing response cards to every adult visitor after a guided walk

Stationary Programs

In the case of a large stationary audience (more than 50 people), it would be best to distribute the cards before the program begins, either just before the program, or as visitors enter the program area. The evaluator hands a card and pencil to every other, or every third adult in the audience until the appropriate sample size is reached. (The evaluator will have to base the sample size on an estimate of the audience size.) He/she then makes a brief announcement (just before the program begins) to explain the purpose of the response card. For example:

"Some of you were randomly selected to receive a response card as you arrived this evening. We'd like to hear what you have to say about tonight's program so that we can improve it. Please fill out the cards after the program and return them to the marked boxes. Your comments and ideas are especially important because you are representing tonight's entire audience. Thank you for your participation!"

The interpreter could make another announcement at the end of the program to remind visitors to return the cards and the pencils. If the audience is large, boxes

marked "RETURN CARDS AND PENCILS HERE" could be placed at each exit. With smaller audiences, someone could collect them personally from the visitors.
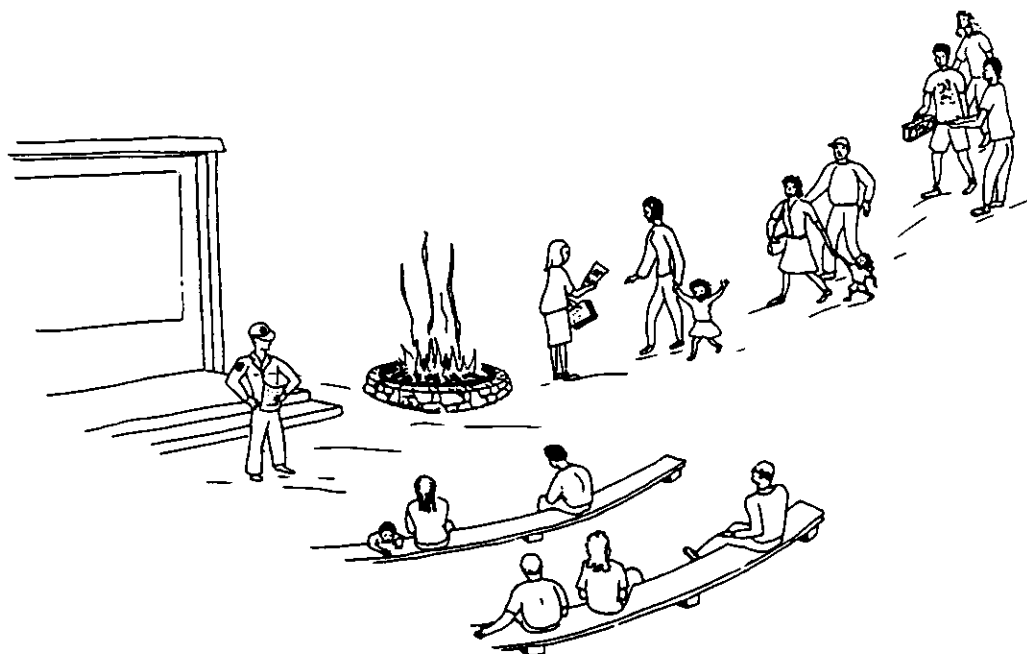
Distributing response cards to every third adult as they enter an amphitheater

Indoor or Outdoor Exhibits

When evaluating nonpersonal services, we want our results to be representative of the visitors who experience these services. Rather than randomly sample visitors, we could randomly select *time periods* in which to distribute cards to exhibit viewers if we have reason to believe that viewers might react differently to the exhibit, depending on the time of day.

For example, you might want to generalize to the visitors who view the exhibit between 8:00 a.m. and 8:00 p.m. every day. There are twelve 60-minute time blocks per day for a total of 84 possible time blocks in seven days. Ask someone to pick a number between 1 and 60, say 31, then select every seventh time block, starting from the 31st block. (See Figure 5.) A distribution schedule would look like the one in Figure 6. If we have reason to believe that on certain days the visitation is very different, e.g. due to a holiday or special event, we could leave those days out and evaluate them separately.

List of possible distribution time blocks

Mon. June 1	Tues. June 2	Weds. June 3	Thurs. June 4	Fri. June 5	Sat. June 6	Sun. June 7
AM	AM	AM	AM	AM	AM	AM
8 - 9	8 - 9	8 - 9	8 - 9	8 - 9	8 - 9	(8 - 9)
9 - 10	9 - 10	9 - 10	(9 - 10)	9 - 10	9 - 10	9 - 10
(10 - 11)	10 - 11	10 - 11	10 - 11	10 - 11	10 - 11	10 - 11
11 - 12	11 - 12	11 - 12	11 - 12	(11 - 12)	11 - 12	11 - 12
PM	PM	PM	PM	PM	PM	PM
12 - 1	(12 - 1)	12 - 1	12 - 1	12 - 1	12 - 1	12 - 1
1 - 2	1 - 2	1 - 2	1 - 2	1 - 2	(1 - 2)	1 - 2
2 - 3	2 - 3	[2 - 3**]	2 - 3	2 - 3	2 - 3	2 - 3
3 - 4	3 - 4	3 - 4	3 - 4	3 - 4	3 - 4	(3 - 4)
4 - 5	4 - 5	4 - 5	(4 - 5)	4 - 5	4 - 5	4 - 5
(5 - 6)	5 - 6	5 - 6	5 - 6	5 - 6	5 - 6	5 - 6
6 - 7	6 - 7	6 - 7	6 - 7	(6 - 7)	6 - 7	6 - 7
7 - 8	(7 - 8)	7 - 8	7 - 8	7 - 8	7 - 8	7 - 8

**Begin here and select every seventh time block.

Figure 5: Possible distribution time blocks from which to make random selections.

Response Card Distribution Schedule

June 1 – 7

MON	TUES	WED	THUR	FRI	SAT	SUN
10–11am	12–1pm	2–3pm	9–10am	11a–12p	1–2pm	8–9am
5–6pm	7–8pm		4–5pm	6–7pm		3–4pm

Figure 6: Schedule of randomly selected time blocks within which to distribute response cards.

During the scheduled time blocks the evaluator may stand within view of the exhibit and personally invite every adult visitor who has viewed the exhibit to fill out a card. If the exhibit area is too busy to approach each visitor, the evaluator must decide how to sample so that each adult visitor has an equal chance of being included in the evaluation. For example, every third visitor to cross an imaginary line is invited to fill out a card.

Distributing response cards to visitors after they have viewed an exhibit

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<u>Self-guided trails</u>

Visitors could voluntarily pick up and return response cards at an evaluation station set up at the end of the trail. Better, however, would be for an evaluator to approach randomly selected visitors individually. Again, a schedule to direct when and whom to sample should be decided upon ahead of time.

STEP 6. Collect the cards and analyze the results.

If visitors have been directed to return their response cards to visitor centers, entrance stations, or drop boxes, be sure that the appropriate personnel know about the evaluation project. Collect the cards *every* day.

To analyze the results, read through all the cards once. As you read, jot down the main points from each card. If a comment is repeated, make a mark next to it. Here is an example of what a tally sheet might look like.

Tally sheet of responses to evaluation
(35 cards distributed, 31 cards returned)

Fire benefits a forest by ...

... clearing the forest floor ₪ ⑤
... improving wildlife habitat ₪ ₪ ⑩
... benefits to deer and elk ₪ ⑤
... allows new growth III ③
... provides jobs for firefighters ①
... getting rid of insects (bark beetles) II ②
... getting rid of diseases II ②
... providing nesting cavities for birds ①
... don't know III ③
... it's natural ①
... enriching the soil II ②

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STEP 7. Interpret and report the results.

This is the culmination of the evaluation process because it addresses the question *"Did this program accomplish what it was intended to accomplish?"* A comparison of the **program's objectives** with the **evaluation's results** should answer this question.

A. Based on the information on the tally sheet, write brief summary paragraphs of the responses to the program. Support the summaries with the comments that were most frequent.

B. Now restate the objective of the program in terms of a question. For example:

After attending the campfire program, did at least 50% of the visitors *state* at least one of the benefits of forest fire?

C. Write a report that includes the summary paragraphs, the supporting comments, the objective (in question form) and a final statement regarding the effectiveness of the program. This final statement answers the question of how well the program accomplished what it was intended to accomplish. The final statement might be written like this:

"At least 50% of the visitors who attended the campfire program on July 6 were able to state at least one of the benefits of forest fire. This program appears to be meeting one of its objectives."

Notice that the final statement is specific to those visitors who attended the campfire program on July 6. Since they were the only visitors included in the evaluation, the results cannot be generalized to any other visitors - that is, unless we are willing to assume that the July 6 visitors are just like visitors who attend on other days.

The final report could be organized as follows:

I.	Title of interpretive service and brief description
II.	Performance objective (stated as a question)
III.	Description of the evaluation process
IV.	Summary of responses with examples
V.	Conclusion and recommendations for improvement.

EXAMPLE

Evaluation Report on
Campfire Program, July 6

I. Program Title: Forest Fire: Friend or Foe?
This program is about the role of fire in the lodgepole pine forest ecosystem. The negative and positive aspects of forest fire are examined, and the Forest Service's fire management program is explained.

II. Evaluation Process
On July 6 an evaluation of this program was conducted using the Response Card Technique. Visitors were asked to complete the sentence: "Forest fire can benefit the forest by,...." The audience numbered about 55 people, and 35 cards were handed to randomly selected visitors as they entered the amphitheater. Thirty-one cards were returned. The objective of the evaluation was to find out if the program was meeting its primary learning objective:

After attending the campfire program, at least 50% of the visitors will be able to state at least one of the benefits of forest fire.

III. Performance Objective (stated as a question)
After attending the program, did at least 50 percent of the visitors who attended the program state at least one of the benefits of forest fire?

IV. Summary of Responses
Thirty one visitors responded and returned their cards. Of these, 26 answered correctly, 3 stated "do not know," and 2 responded incorrectly. The most frequently listed responses were about the benefits of forest fire as presented in the program. Following are some examples of the most frequent responses.
Forest fire can benefit the forest by...
"providing/creating wildlife habitat."
"clearing the forest for new trees."
"getting rid of [tree] diseases."

V. Conclusion
84 percent of the visitors who responded were able to state at least one of the benefits of forest fire, and 16 percent did not know, or answered incorrectly. This program appears to be meeting its primary learning objective that at least 50 percent could provide a correct answer.

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Evaluation Technique 2
Group Interview

A group interview is simply a brief discussion with a group of five to eight visitors in which the interaction between participants generates ideas. The evaluator leads the discussion by asking one or more questions. The session is tape-recorded so that the evaluator can analyze it later.

This technique is qualitative; the results are expressed verbally rather than numerically. For example, rather than being concerned with how many visitors learned a certain fact, we would be interested in finding out what kinds of things they learned from the program. Application of this technique does not rely on performance objectives. Instead, the things that visitors learned from an interpretive service are compared to its theme, or key idea. The things that visitors enjoyed about an interpretive service are reported in a narrative description of the group interview.

The group interview is a very flexible technique, and is well-suited to evaluate children's programs as well as those aimed at adults. Because participation in a group interview is voluntary, results cannot be generalized to other visitors.

Materials needed:
Tape recorder with microphone
Cassette tape
Small gifts of appreciation (8 per group)
Optional: refreshments for up to 15 people per group

How to do it:

STEP 1. Identify the theme.
The theme is the key idea upon which an exhibit, program, or other interpretive service is built. It is the main point that visitors should walk away with after experiencing an interpretive service. It should be stated as a single sentence, containing one idea. In the case of personal presentations such as talks and guided walks, the interpreter him or herself should provide the theme statement. In the case of a nonpersonal service such as an exhibit or self-guided activity, themes have to be discerned by the evaluator or taken from project planning documents. Here are a few examples of theme statements:
- Fire can benefit the forest in many ways.
- Glaciers have sculpted the landscape we see today.
- The first settlers in this valley had a lasting influence on the land.

STEP 2. Prepare open-ended interview questions.

Interview questions should be specific. They should also be open-ended, meaning they cannot be answered with simply one word, such as "yes," "sometimes," etc. Which of these two questions is more open-ended?

1. Did you learn something from this program?
2. What did you learn from this program?

Question 2 is open-ended. It invites a more in-depth answer, whereas a "yes" or "no" answer to the first question may not yield much information.

Eight participants can usually answer three open-ended questions in about 15 minutes. The first question should be an easy one to set the group at ease, followed by one or two questions about the interpretive service. Here are some examples of questions for different situations.

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1. Interpretive service: Personal or Non-personal
Objective: Learning. As mentioned, the Group Interview technique does not rely on quantified performance objectives. However, the theme, or key idea of the interpretive service should be identified before undertaking an evaluation.

Question 1: "Our first question is an easy one: Where are you from?"

Note that the intention here is to "break the ice" and give everyone a chance to speak. Have them answer this one in a clockwise or counter-clockwise order; but for the following questions let them answer in any order, as ideas come to them.

Question 2: "Now think about what you saw and heard at the program *(or exhibit, walk, etc.)*. What was the most important or interesting thing you learned?"

As you listen to participants, think about whether or not their responses are specific enough to provide useful information. If not, politely ask them to elaborate or to be more specific.
Do not agree or disagree with participants. Simply acknowledge their comments in a neutral, unbiased manner.

Question 3: "Is there anything else you'd like to say about this program *(or exhibit, etc.)*?"

Ask this question only if there is enough time, or if you feel that some participants may have more to say.

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2. Interpretive Service: Personal or Non-personal
Objective: Enjoyment

> **Question 1:** "Where are you from?"

> **Question 2:** "Think about the program *(or exhibit, etc.)* you've just experienced. What did you like about it?"

Again, you may need to ask participants to elaborate so that you find out specifically what they liked.

> **Question 3:** "How could this program *(or exhibit, etc.)* be more enjoyable for you?"

> **Question 4:** "Is there anything else you'd like to say about this program *(or exhibit, etc.)*?

Again, this question is optional.

3. Interpretive Service: Written texts (publications, exhibit texts, sign texts, etc.)
Objective: Generally, our objectives for interpretive writing is that it be read, understood, and enjoyed. The questions you ask will depend on which aspect of the writing you want feedback on. You might want to know visitors' general reactions, or specifically what they learned from it or enjoyed about it. We do not recommend that you evaluate any text that takes more than three or four minutes to read.

> **Question 1:** "Where are you from?"

> **Question 2:** "Please take a few minutes to read this brochure *(leaflet, exhibit, text, sign text, etc.)*."

> *Wait until everyone appears to have finished the text. As they read, slowly read the text yourself.*
> *The question you ask depends on what you want to know about the text.*

> *General Reaction:* "What did you think of this brochure?"
> *Enjoyment:* "What did you like about this brochure?"
> *Learning:* "What was the most interesting thing you learned from this brochure?"
> **Question 3:** "Do you have any ideas on how this could be better (or, easier to read, more interesting, more enjoyable, etc.)?"

STEP 3. Prepare for the group interview.

■ Select a meeting place with comfortable seating for up to fifteen people (in case participants are accompanied by children). It should be near the location of the interpretive activity and can be indoors or out.

■ Refreshments are optional, but they help encourage participation. Cold lemonade or hot coffee or cocoa are fairly easy to serve.

■ A small gift, such as a pin, sticker or poster, also encourages people to participate, and is an important token of thanks for their time and ideas. Have the gifts ready to distribute after the interview.

■ Make sure the tape recorder is ready to go.

STEP 4. Invite participants

The minimum size for a group is five participants. With fewer than five it is difficult to generate much discussion. The maximum size is eight adults. (Children may sit in on the discussion but should not count as part of the eight.) How to invite participants depends on the type of interpretive service you are evaluating.

Personal service

Be sure the interpreter knows that a group discussion will be taking place after his or her program. If it is a stationary program with an audience of more than 25, individually invite visitors to participate before the program begins. For a program with a smaller audience, such as a guided walk, make a general announcement at the end of the program to invite visitors. As the evaluator, you should not be in uniform. Dress casually. Here is an example of an invitation:

"Good afternoon! My name is _____ and I'm working on a project for _____ National Forest to find out how we can better serve our visitors. We need your input! I'd like to invite you to join me in a brief group discussion about this program. I have refreshments and a small gift for each participant... If you're interested in participating, please follow me. I'll take the first eight people...."

Nonpersonal services, including written texts

Visitors may be approached and invited individually until five to eight have agreed to participate. If you are evaluating an exhibit, stand near the exit and approach visitors as they leave. If evaluating a text, you may simply approach visitors in a visitor center, campground, etc. In any case, give them clear directions on where the discussion will take place, and have an assistant greet them there and serve refreshments while you continue recruiting participants. Do not keep participants waiting more than about ten minutes before starting the discussion.

STEP 5. Conduct the interview

Once the participants and any non-participants are seated and have their refreshments, begin the interview.

Here is an example of an "interview script," to find out what visitors learned from a program.

Introduction

"Thank you for joining me this afternoon. As I mentioned earlier, we're interested in improving our visitor services, such as the program *(exhibit, publication, etc.)* you've just seen, and the best way to find out how to improve is to talk to our visitors. I'll be asking you a few questions. Please say whatever is on your mind - we need to hear about the negative as well as the positive. I'll be tape-recording the discussion so that I can take notes later, but your comments will be completely anonymous."

Note that the introduction is casual, but clear. Your goal is to encourage visitors to comment freely. Again, the more information you can generate, the more useful the evaluation.

Questions

Beginning with the "ice-breaker," ask your questions. See the examples provided in Step 2.

Conclusion

"Thank you for your input! It's nice to have an opportunity to listen to what our visitors have to say about our programs. Your comments will be included in a report on how we're doing and how we can improve. I have a gift for each of you as a token of thanks..."

STEP 6. Analyze the discussion.

A. As soon as possible after the discussion, listen to the tape and jot down the main points of each participant's response to each question. (See the Example Report at the end of this section.)

B. For each question, write a few sentences to summarize the responses.

STEP 7. Report the results.

Write a report that includes the summary paragraphs, the supporting comments, the objective (in question form) and a final statement regarding the effectiveness of the program. Did visitors enjoy the service? Did they state the theme? The final statement should be specific to those visitors who participated in the group discussion. The report could be organized as follows:

I.   Title of interpretive service and brief description
II.   Brief description of evaluation
III.   Theme statement *(if evaluating learning)*
IV.   Summary of responses to each question (Step 7) and list of individual
        responses
V.   Conclusion and recommendations for improvement.

EXAMPLE

Evaluation Report on
Campfire Talk, June 18

I. Program Title: "Forest Fire: Friend or Foe?"
    This program is about the role of fire in the lodgepole pine ecosystem. The positive and negative aspects of fire are examined and the Forest Service's fire management program is explained.

II. Evaluation process
    On June 18 this program was evaluated using the Group Interview method. The objective of the evaluation was to find out what visitors learned from the program, and specifically to determine if visitors mentioned the program's theme.

II. Theme statement:
    "Fire can benefit the forest in many ways."

IV. Evaluation Summary
    Seven visitors participated in a fifteen minute discussion immediately following the campfire talk on June 18. The discussion was led by a moderator, and consisted of three questions.

Question 1: Where are you from?
2 from Boise, ID
1 from Ketchum, ID
3 from Salt Lake City, UT
1 from Sacramento, CA

Question 2: What was the most important or most interesting
                thing you learned?
Summary:
All but one of the participants mentioned learning something about fire, and several mentioned the benefits of fire. Their responses are as follows:

"... that fire wasn't as bad, as damaging, as I thought."

"I knew that some trees need fire...but it was interesting to find out why, like the cones that open after they're heated."

"...that trees like aspen come back after fire, so quickly."

"The whole fire fighting thing was interesting to me...the different *levels* of fire fighting."

"I don't know...they [fires] still scare me, especially after last year...and it's so ugly for a long time afterwards."

"...that deer and elk benefit from it - from new growth."

"Well, I knew about the deer, but not about woodpeckers. He said that a recent burn was a good place to look for them."

Question 3: Is there anything else you would like to say about the program?

"I liked his talk, especially the pictures of fire fighters in action."

"He didn't emphasize the negative...gave a balanced picture."

"I'd like to see more 'before and after' shots...to see how it looks years after.

V. Conclusion

Visitors appear to be learning from this program, and the theme is clearly being communicated. It might be useful to demonstrate the complete fire cycle by showing slides of a mature forest, a recent burn, and an old burn.

Evaluation Technique 3
Observation

This quantitative technique applies to both personal and non-personal services. It is a systematic approach to observing and recording visitor behavior. The limiting factor in studying behavior is that the evaluator must be able to observe it. There are many cases in which the behavioral effect of an interpretive service cannot be evaluated because it cannot be observed. For example, a program objective could state that "80% of the visitors who attend this campfire program will not feed the wildlife," but it would be logistically difficult to observe this behavior.

Usually we're interested in evaluating the effect of interpretation on visitor behavior that is *immediately observable*. We might evaluate the ability of an exhibit or program to attract and hold attention or to reduce undesirable behavior or stimulate desirable behavior in the immediate vicinity. Given the wide range of evaluation situations, what follows are general guidelines for applying this technique. It may be custom-fit to a variety of situations.

Materials needed:
This requirement varies with each evaluation, but in general few materials are needed beyond pencil and paper and possibly a watch that tracks seconds.

How to do it:

STEP 1. Identify performance objectives.
Objectives should be measurable and quantitative. (Review Section 2: Preparing to Evaluate.)

STEP 2. Design an observation form.
The form should be no longer than one page and must be easy to use so that behavior can be recorded quickly and accurately. Before designing the form, think through these questions:

- What is the performance objective?
- What is the specific behavior I'm interested in?
- Can this behavior be observed in the immediate vicinity of the interpretive service?
- How will I know when I see it?
- What is the best way to observe it?

Following are two evaluation situations and examples of observation forms.

Situation A:

Suppose we want to find out if visitors are reading an exhibit. Here is the performance objective:

"At least 50% of the visitors who take the meadow trail will *read* the trailhead exhibit about fragile meadows."

The first step is to establish what constitutes "reading the exhibit." In other words, what is the minimum length of time a visitor must spend looking at the exhibit so the observer can say the visitor has read it? One approach would be to ask ten different adult visitors to read the entire exhibit and average their reading times. (As before, an "adult" is anyone who appears to be teenage or older.) However, it is often not necessary to read an entire exhibit in order to get the main points. Therefore, another approach might be to assume that an exhibit should communicate its main points in 15 seconds or less, thereby making 15 seconds the criterion for "reading."

Once reading time is established, observation is a relatively straightforward task. Observers can position themselves within viewing distance of the exhibit and observe whether or not visitors stop and read it. This observation form would work well.

```
┌─────────────────────────────────────────────────────────────┐
│        Meadow Trailhead Exhibit Observation Form             │
│                                                              │
│   Observer:___Tim_____                                    │
│   Observation period (date/time):_June 1/ 10-11 am           │
│                                                              │
│           ┌──────────────────────────────┬──────────┐       │
│  Did read │  IHI IHA IIII                 │ TOTAL:   │       │
│           │                               │  14      │       │
│           ├──────────────────────────────┼──────────┤       │
│  Did not  │  INI IIII                     │ TOTAL:   │       │
│  read     │                               │  9       │       │
│           └──────────────────────────────┴──────────┘       │
└─────────────────────────────────────────────────────────────┘
```

Figure 7: Observation form for Situation A

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Situation B:

The same exhibit could be evaluated for its apparent effect on visitor behavior. Our objective might read:

"At least 50% of the visitors who read the trailhead exhibit about fragile meadows *will not leave* the designated trail."

Situation B is slightly more complex. The observer inconspicuously follows visitors (from a distance) after they read the exhibit, or observes from a vantage point, to see if they stay on the trail. As with "reading time" we need to define "leaving the trail." A reasonable definition would be if the visitor intentionally steps off the trail with both feet. If the trail is short, e.g. less than 1/2 mile, observers could follow the entire distance. Otherwise, the evaluator may have to set limits on how far to follow or establish an "observation area" on the trail. Figure 8 presents an observation form for this situation.

Meadow Trailhead Exhibit Observation Form

Observer: _Janet_

Observation period (date/time): _June 3/ 2-3_

	Stayed on trail	Stepped off trail	
Did read	ꟼꟼꟼ III	IIII	Total that did read: 12
Did not read	III	III	Total that did not read: 6
	Total that stayed on: II	Total that stepped off: 7	

Figure 8: Observation form for Situation B.

We strongly recommend that a draft observation form be pilot-tested by several different people before the actual evaluation takes place. To test the usability of the form, have two observers independently and simultaneously use the form, then

compare their results. If results are widely different, the observation form may have a problem. Talk to the two observers to find out why they recorded things differently and use their ideas to redesign the form or the procedure.

STEP 3. Establish a sampling plan

Here we have two sampling issues to consider. First, we want our observation times to be representative of the times we want to generalize to. Second, we want to ensure that the visitors we observe are representative of the visitors we want to generalize to.

If we have reason to believe that viewers might behave differently, depending on the time of day, then we should randomly select observation periods. The recommended length of an observation period is between 30 and 60 minutes. If, for example, you want to generalize to all times between 8:00 a.m. and 8:00 p.m. every day, there are twelve 60-minute observation periods per day for a total of 84 possible observation periods in seven days. Ask someone to pick a number between 1 and 60, say 31, then select every seventh observation period, starting from the 31st period. The observation schedule would look like the one in Figure 9. If we have reason to believe that on certain days the visitation is very different, e.g. due to a holiday or special event, we could leave those days out and evaluate them separately. The schedule should be planned ahead of time so that if one observation period is missed, because of bad weather, for example, it can be made up later with a similar one.

List of possible observation periods

Mon.	Tues.	Weds.	Thurs.	Fri.	Sat.	Sun.
June 1	June 2	June 3	June 4	June 5	June 6	June 7
AM	AM	AM	AM	AM	AM	AM
8 - 9	8 - 9	8 - 9	(8 - 9)	8 - 9	8 - 9	(8 - 9)
9 - 10	9 - 10	9 - 10	(9 - 10)	9 - 10	9 - 10	9 - 10
(10 - 11)	10 - 11	10 - 11	10 - 11	10 - 11	10 - 11	10 - 11
11 - 12	11 - 12	11 - 12	11 - 12	(11 - 12)	11 - 12	11 - 12
PM	PM	PM	PM	PM	PM	PM
12 - 1	(12 - 1)	12 - 1	12 - 1	12 - 1	12 - 1	12 - 1
1 - 2	1 - 2	1 - 2	1 - 2	1 - 2	(1 - 2)	1 - 2
2 - 3	2 - 3	2 - 3**	2 - 3	2 - 3	2 - 3	2 - 3
3 - 4	3 - 4	3 - 4	3 - 4	3 - 4	3 - 4	(3 - 4)
4 - 5	4 - 5	4 - 5	(4 - 5)	4 - 5	4 - 5	4 - 5
(5 - 6)	5 - 6	5 - 6	5 - 6	5 - 6	5 - 6	5 - 6
6 - 7	6 - 7	6 - 7	6 - 7	(6 - 7)	6 - 7	6 - 7
7 - 8	(7 - 8)	7 - 8	7 - 8	7 - 8	7 - 8	7 - 8

** Begin here and select every seventh time block.

Figure 9: Possible observation periods from which to make random selections

Meadow Trailhead Exhibit Observation Schedule
June 1 - 7

MON	TUES	WED	THUR	FRI	SAT	SUN
10–11am	12–1pm	2–3pm	9–10am	11a–12p	1–2pm	8–9am
5–6pm	7–8pm		4–5pm	6–7pm		3–4pm

Figure 10: Schedule of randomly selected observation periods.

Now decide which visitors to observe within each observation period, so that each visitor has an equal chance of being observed. For example, after completing an observation of visitor #1, the third visitor to cross a certain point and read the exhibit becomes observation #2. If a visitor is part of a group, only record observations about that individual visitor. If the exhibit area is not very busy you could observe everyone who reads the exhibit within each observation period.
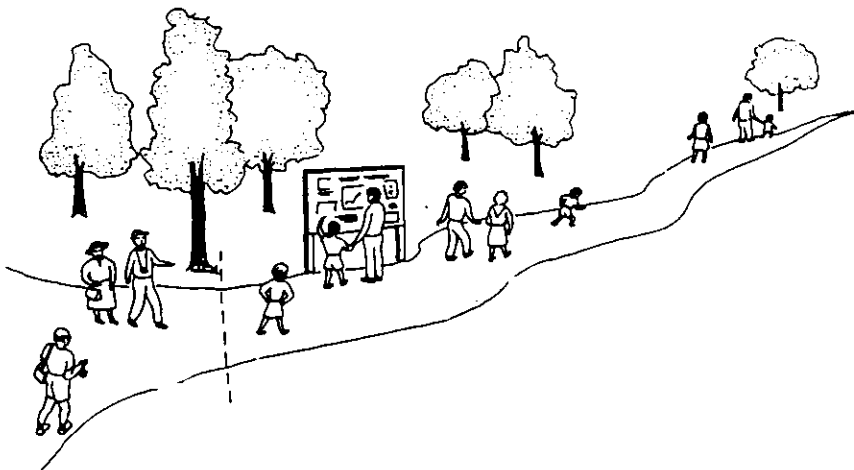
Observing every third adult visitor to cross an imaginary line

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STEP 4. Prepare observers.

Observers should practice using the observation form several times until they are comfortable with it and use it efficiently. Have the observers-in-training independently observe the same thing, then compare notes to make sure they are using the form correctly.

Instruct observers to be inconspicuous and unobtrusive. Techniques such as inserting the observation form in a field guide or other guide book helps camouflage the observation.

STEP 5. Assign observation periods to observers.

Tell the observers which observation periods they are responsible for and give them each one observation form for each period. If they miss an observation period, or feel that special conditions (such as bad weather) would interfere with or prevent the observation, ask them to report to you so that you can assign them a substitute period.

STEP 6. Conduct the observations and collect the forms.

Ask observers to return the completed observation forms to you as soon as possible.

STEP 7. Analyze the information.

Using a blank observation form, tally the numbers from all the returned observation forms and summarize the results. Results may be expressed in terms of raw numbers that expressed what happened (of the 127 visitors observed, 76 read the exhibit) or in percentages (60% of the visitors observed read the exhibit). Expressing the results both ways is best.

Meadow Trailhead Exhibit Observation Form

Observer: _Tally sheet of 12 obsv periods_

Observation period (date/time): _____/_____ _June 1-7_

	Stayed on trail	Stepped off trail	
Did read	50	26	**Total that did read:** 76 (60%)
Did not read	31	20	**Total that did not read:** 51 (40%)
	Total that stayed on: 81 (64%)	**Total that stepped off:** 46 (36%)	

Figure 11: Observation form used as a tally sheet

STEP 8. Interpret and report the results.

A. Look at the numbers. What do they mean, in terms of the objectives of the interpretive service? Write a brief summary about each type of information collected, including either the raw numbers or the percentages.

B. Restate the objective, in the form of a question.

C. Write a report that includes the summaries, the objective -- in question form -- and a final statement regarding the effectiveness of the program.

The final statement is a comparison of the program's objectives to the evaluation's results, and should be specific to those visitors observed.

The report could be organized as follows:

I.	Title of interpretive service and brief description
II.	Brief description of evaluation
II.	Performance objective (stated as a question)
III.	Results
IV.	Conclusion and recommendations for improvement.

EXAMPLE

Evaluation Report on
Meadow Trailhead Exhibit, June 1 - 7

I. Title of exhibit: Preserve the Meadows!
     This exhibit is posted at the head of the Upper Meadow Trail. It explains why
the meadows are fragile and how damaging human trampling can be. It explains the
meadow restoration project, and asks visitors to cooperate by not stepping off the
marked trails.

II. Performance objective (stated as a question)
     "Will at least 50 percent of the visitors who read the trailhead exhibit stay on
the designated trail?"

III. Evaluation procedure
     Twelve 60-minute observation periods were randomly selected to represent the
week of June 1 - 7. Three volunteer observers were assigned four observation periods
each. They were stationed in the trailhead parking lot. Every third visitor who crossed
an imaginary line was observed. If the visitor read the exhibit, the observer
unobtrusively followed the visitor to the half-way point on the trail to see if he/she
stepped off the trail.

IV. Results

■127 visitors were observed.
■76 visitors, or 60%, read the exhibit.
■Of those visitors who read the exhibit, 66% stayed on the trail and 34% stepped off
the trail.

■51 visitors, or 40%, did not read the exhibit.
■Of those visitors who did not read the exhibit, 60% stayed on the trail and 40%
stepped off the trail.

V. Conclusion and recommendations
     It appears that this exhibit is meeting its objective, as over 50 percent of the
visitors observed reading the exhibit did not leave the designated trail. It is interesting
to note that of the visitors who did not read the exhibit, 60 percent did not leave the
trail.

The objectives of many publications, exhibit texts and signs are to orient visitors and educate them about forest resources, policies, and recreational opportunities. We make the assumption that, whatever the content, if a text is to be enjoyed, understood, and remembered, it must be read and it must hold the reader's attention. This evaluation technique is a way to determine the *reading ease* and *human interest*, in other words, the *readability* of the brochures, leaflets, exhibits, and other pieces of writing that are produced for forest visitors. Ideally, this technique will be used to complement the Group Interview Technique (see Evaluation Technique 2), which gathers opinions directly from visitors.

In 1949, Rudolf Flesch invented two formulae for measuring readability. First he developed a scale and formula to determine reading ease, a technique that is still used today in research and in style-checking computer software (such as *Correct Grammar* by Lifetree Software). Flesch's premise was that if writers simplified their writing, readers would read it faster, enjoy it more, understand it better and remember it longer. Flesch applied his scale to hundreds of publications and concluded that "The simple style - the style that meets scientific tests of readability - is *the* classic style of great literature" (Flesch, 1949).

Flesch invented a second scale and formula to determine the human interest of a written text. According to him, "humanized" writing contains ample personal references, enabling the reader to relate to the text, thus holding his or her interest and helping him or her to remember it.

Celebrate
National Forests
1891-1991
100 Years of Conservation

NATIONAL
FORESTS
1891-1991

US Department of Agriculture
Forest Service

110
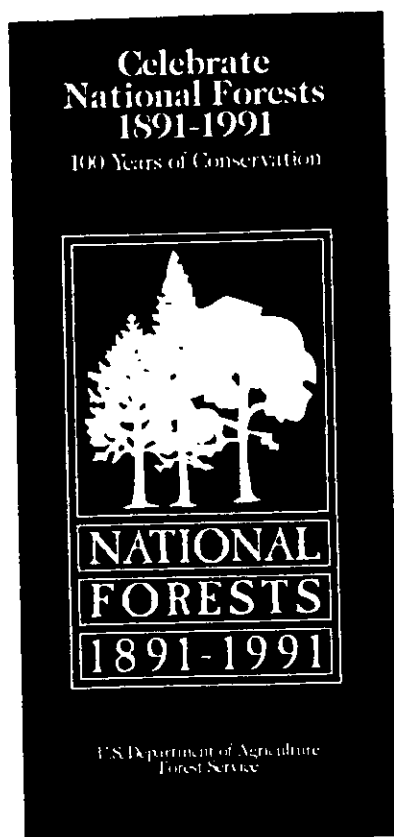
How to Determine "Reading Ease" Using Flesch's Procedure

According to Flesch, reading ease is a function of "S" -- the average number of syllables per paragraph -- and "L" -- the average sentence length. Once these are determined, we use a simple formula, containing constants calculated by Flesch, to calculate reading ease.

Before proceeding with any steps, decide how much text to analyze.

If the text is brief, such as an exhibit or sign, you may want to analyze the whole thing. Otherwise, select a sample, for example, every third paragraph of an article, or one paragraph per page of a book.

Steps to take if you are analyzing "reading ease" of an entire text.

STEP 1. Count the words in the text.

If your text is on computer, your wordprocessing program may be able to count the words. Another way to count is to use a clicker-counter, or the space bar on a typewriter or computer keyboard and read the text aloud, clicking once for each word. Figures, such as $65.00 and 1991, and abbreviations, contractions, and hyphenated words such as etc., wouldn't, self-guided, each count as one word.

STEP 2. Calculate "L" -- the average sentence length.

L = total number of words ÷ total number of sentences.

Count all the sentences in the text and divide this by the number of words in the text. A sentence divided by a colon or semi-colon counts as two sentences.

STEP 3. Calculate "S" -- the average number of syllables per 100 words.

S = (total number of syllables ÷ total number of words) x 100

As suggested for Step 1, read the text out loud and click once on your counter or space bar for each syllable. Count all the syllables in the text and divide the total number of syllables by the total number of words and multiply by 100. This will give you the number of syllables per 100 words.

STEP 4. Calculate the "reading ease" score using Flesch's formula.

Reading ease = 206.835 - (0.846)S - (1.015)L
(numbers are constants)

$\quad$ S = average number of syllables per 100 words

$\quad$ L = average number of words per sentence

Compare this number to the Reading Ease Scale (Fig 12).

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Steps to take if you are analyzing "reading ease" of a sample of text.

STEP 1. Count the number of words in the sample.

Take each paragraph in the sample and count each word in it. If there are more than 100 words in a paragraph, count up to the 100th word and circle that word. Figures, such as *$65.00* and *1991*, and abbreviations, contractions, and hyphenated words such as *etc., wouldn't, self-guided,* each count as one word. Add the number of words in each paragraph together to get the total number of words in the sample.

STEP 2. Calculate "L", the average sentence length.

L = total number of words in sample ÷ number of sentences in sample.

Of the words you counted in Step 1, count the number of sentences they comprise. In a paragraph with more than 100 words, count up to the sentence that ends nearest to the 100th word. (It may end before or after the 100th word.) A sentence with a semicolon or colon constitutes two sentences.

Divide the total number of words in the sample by the total number of sentences in the sample.

STEP 3. Calculate "S" - the average number of syllables per paragraph.

S = number of syllables in sample ÷ number of paragraphs in sample.

Read the sample out loud, clicking once on your counter for each syllable. Count the syllables in each paragraph of the sample (up to the 100th word of each paragraph) and total them. Divide the total number of syllables in the sample by the number of paragraphs in the sample.

STEP 4. Calculate the "reading ease" score using Flesch's formula.

Reading ease = 206.835 - (0.846)S - (1.015)L

(numbers are constants)

S = average number of syllables per paragraph (or 100 words)

L = average number of words per sentence.

Compare this number to the Reading Ease Scale (Fig 12).

Reading Ease Scale

100 ↑ **Easy to read
Short words and sentences**

0 **Difficult to read
Long words and sentences**
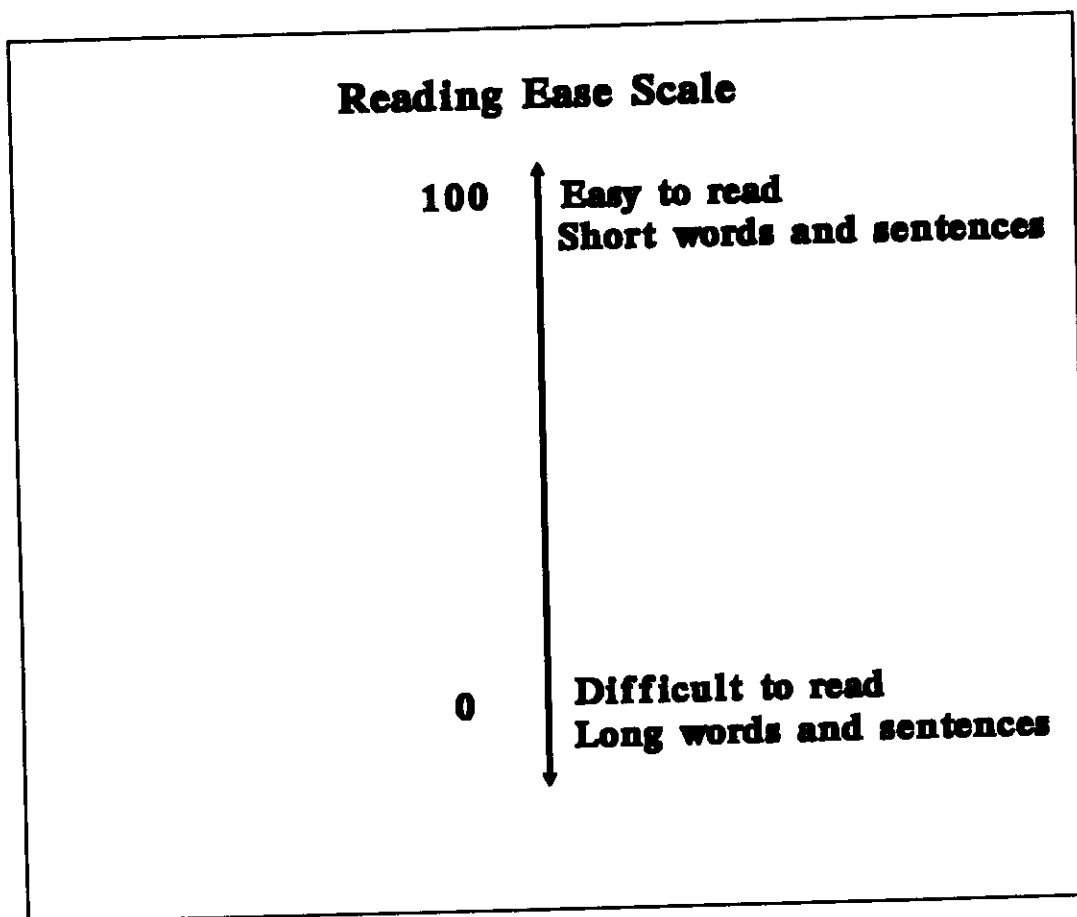
Figure 12: Flesch's Reading Ease Scale

Interpret the results

What do these numbers mean? The reading ease formula measures length - the longer the words and sentences in a text, the more difficult it is to read. Remember who your our audience is: people on vacation with a lot of distractions. The information we want to share must be easy to read. The lower the "reading ease" score of a text, the more difficult it is to read. Look for long words and substitute them with shorter ones; break up long sentences.

The following example demonstrates how a brochure was analyzed for reading ease. The reading ease score was determined to be 86.4. This is a fairly high score, meaning the words and sentences are short and easy to read.

17 wd
23 syll
3 sent So, you are going camping! Fine! Here are a few tips to help make your trip more enjoyable.

PLAN AHEAD

55 wd
88 syll
6 sent Find out as much as you can about the area where you will be camping. Obtain maps if possible. Know campground locations and types of camping accommodated (tents, campers, trailers). Make reservations or have an alternative plan. Find out what facilities (water, toilets, fireplace, etc.) are provided. This will help in planning what to take.

AT THE CAMPGROUND

53 wd
81 syll
7 sent Select a site. Consider: privacy afforded, distance from facilities, and ease of entry and exit. If using a tent, look for a level, well-drained site. Bring tent poles and pegs, also foam pads or air mattresses. Cutting trees, shrubs, or branches is forbidden at most campgrounds. Check bulletin boards for rules and procedures.

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Wd = words
Syll = syllables
Sent = sentences

CAMPGROUND COURTESY

47 wd
64 syll
5 sent Respect the rights and privacy of other campers. Place trash in receptacles or take it out with you. Avoid making loud noises at night. Treat signs, tables, and other facilities as if they were your own. Leave your campsite the way you would like to find it.

KEEP THE WATER SUPPLY CLEAN

48 wd
68 syll
4 sent Carry water used for washing yourself or your dishes away from the source of drinking water. Dispose of soapy water, grease, and other waste away from lakes, springs, or streams. Boil drinking water unless you are certain it is safe. Use toilets provided and help keep them clean.

HELP PRESERVE SOIL AND PLANTS

41 wd
62 syll
4 sent Use only designated paths and trails. Leave wildflowers for others to enjoy. If permitted, and you dig holes for any reason, replace soil and sod, then tamp well. Avoid disturbing soil in fragile areas such as stream banks or mountain meadows.

FOOD PREPARATION AND STORAGE

91 wd
127 syll
5 sent Use of a portable stove can be invaluable on a camping trip. If you use firewood or charcoal for cooking, you may have to carry them with you, since wood is not always available at campsites. Use the fireplaces provided. Do not leave any fire unattended. Put fires out by soaking with water and stirring with a stick, trowel, or other tool.

Do not leave food out while away from camp. Keep all foodstuffs together and store in a safe place. In bear country, put food in car or other vehicle.

ACCIDENTS CAN RUIN YOUR TRIP

35 wd
57 syll
6 sent Guard against them! Familiarize yourself with hazards of the area such as poisonous snakes, plants, and insects; rockslides; or dangerous animals. Know how to cope with them. Keep small children from wandering away unattended.

MISHAPS DO HAPPEN

39 wd
48 syll
3 sent Know what to do if one should occur. Carry a first aid kit and know how to use it. Know how to get in touch with police, park or forest rangers, or others who can help in an emergency.

LEAVE YOUR TRIP PLAN

37 wd
52 syll
3 sent Notify a neighbor, friend, or member of your family of your planned travel route. Should your plans change, be sure to let someone know. Be sure someone knows how to get in touch with you should it become necessary.

GIVE A HOOT! DON'T POLLUTE!

9 wd
13 syll
1 sent Recycle these guidelines by giving them to a friend.

March 1976

Total words = 445
Total sentences = 50
L = 445 ÷ 50 = 8.9

Total syllables = 683

$S = (683 ÷ 445) \times 100 = 153$

Reading Ease score =
$206.835 - (.846)S - (1.015)L =$

86.4

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How to Determine Human Interest Using Flesch's Procedure:

The human interest score of a piece of writing depends on the values of "W" -- the average number of "personal words" per paragraph and "S" -- the average number of "personal sentences" per 100 sentences. Once these are determined, we use a simple formula, containing constants calculated by Flesch, to calculate human interest.

"Personal words" are:

a) All pronouns that refer to people, e.g. *I, you, mine, yours, he, she, his, hers, we, us, ours, they, them, theirs,* etc. Do not count the neuter pronouns *it, its, itself.* Do not count *they, them, their(s), themselves* if referring to things rather than people.

b) All words that have masculine or feminine gender, e.g. *John, wife, boy, spokeswoman, salesman.* Do not count common-gender words like *ranger, employee, child, spouse.* Count singular and plural forms.

c) The group words *people(s)* and *folk(s).*

"Personal sentences" are:

a) Spoken sentences, marked by quotation marks or otherwise.

b) Questions, commands, requests, and other sentences addressed to the reader e.g., *Have you ever seen an eagle's nest?* or *Taste a huckleberry* or, *Please do not feed the wildlife.*

c) Exclamations, e.g., *It's not too late!*

d) Grammatically incomplete sentences whose full meaning has to be inferred from the context, e.g., *Well, it didn't,* or, *Frightened yet?*

If a sentence fits more than one of these definitions, only count it once.

Before proceeding with any steps, decide how much of a text to analyze.

If the text is brief, you may want to analyze the whole thing. Otherwise, select a sample, for example, every third paragraph of an article, or one paragraph per page of a book.

Steps to take if you are analyzing the human interest of an entire text.

STEP 1. Calculate "W" -- the number of "personal words" per 100 words.

W = (number of personal words ÷ total number of words) x 100

Count the words in the text. If it is on computer, your wordprocessing program may be able to supply this number, or use a clicker-counter, or the space bar of a typewriter or wordprocessor and read the publication aloud, clicking once for each word. Figures, such as *$65.00* and *1991,* and abbreviations, contractions, and hyphenated words count as one word. For example, *etc., wouldn't,* and *self-guided,* each count as one word.

Now count the "personal words." One way to do this is to read through the text and circle all the personal words, then go back and count them. Divide the number of personal words by the total number of words and multiply this by 100.

STEP 2. Calculate S — the number of "personal sentences" per 100 words.

S = (number of personal sentences ÷ total number of sentences) x 100

Count all the sentences in the text, then count the "personal sentences." Divide the number of "personal sentences" by the total number of sentences and multiply by 100.

STEP 3. Calculate the "human interest" score using Flesch's formula.

Human interest = (3.635)W + (0.314)S

(numbers are constants)

W = number of "personal words" per 100 words,

S = number of "personal sentences" per 100 sentences.

Compare this number to the Human Interest Scale (Figure 13)

Steps to take if analyzing the human interest of a sample.

STEP 1. Calculate "W" - the average number of "personal words" per paragraph.

W = number of personal words in sample ÷ number of paragraphs in sample.

If a paragraph has more than 100 words, determine where the 100th word is and circle it. Count the "personal words" in each paragraph up to the 100th word and add them up to get the total number of "personal words" in the sample. One way to do this is to read through the text and circle all the personal words, then go back and count them.

Divide the number of "personal words" in the sample by the number of paragraphs in the sample.

STEP 2. Calculate "S" — the number of personal sentences per 100 words.

S = (number of personal sentences in the sample ÷ total number of sentences in the sample) x 100

Count the all sentences in each paragraph, up to the sentence that ends nearest to the 100th word, and add them up. Then count the "personal sentences" in each paragraph and add them up.

Divide the number of "personal sentences" by the total number of sentences and multiply by 100.

STEP 3. Calculate the "human interest" score using Flesch's formula.

Human interest = (3.635)W + (0.314)S

(numbers are constants)

W = average number of "personal words" per 100 words,

S = average number of "personal sentences" per 100 sentences.

Compare this number to the Human Interest Scale (Figure 13).

Human Interest Scale

100 | **Very interesting
Rich with personal words
and sentences**

0 | **Dull
No personal words
or sentences**
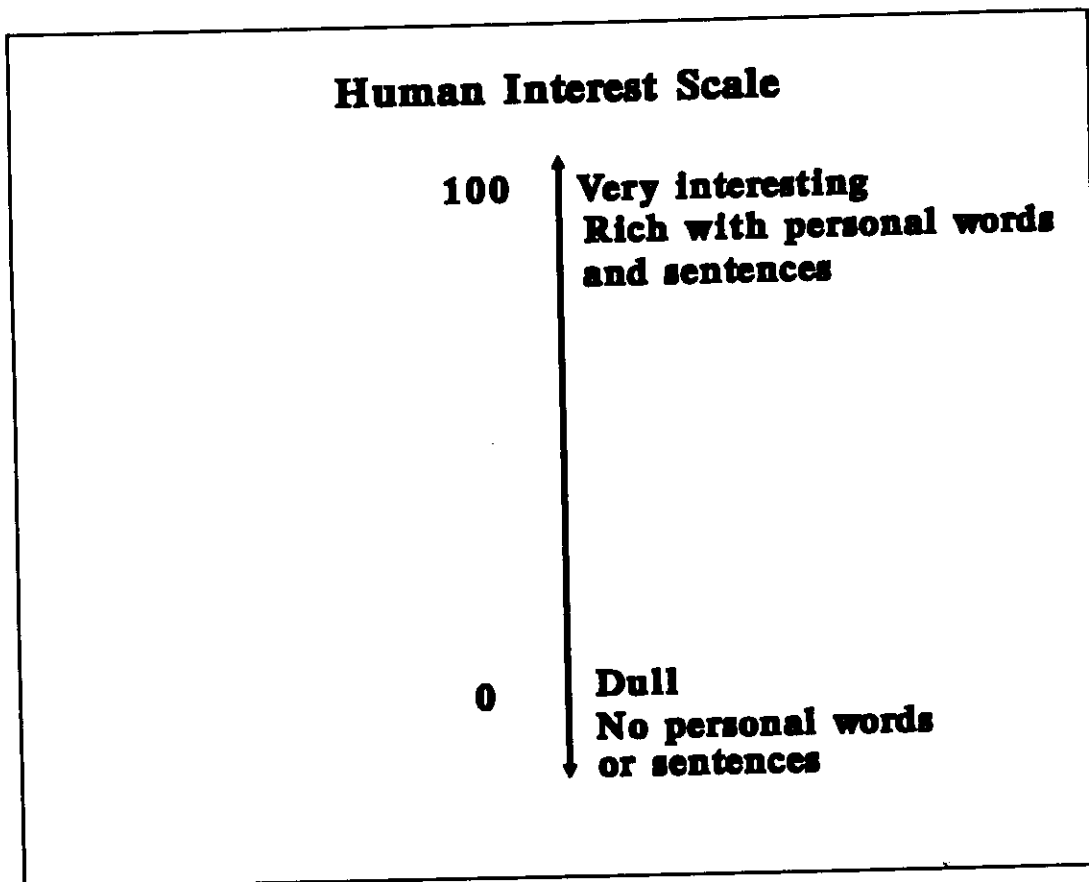
Figure 13: Flesch's Human Interest Scale

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Interpret the results

The human interest formula measures percentages – the more personal words and sentences in a text, the more interesting it is to read. If a score below 30, try writing in a way that relates more to people. For example, ask questions, use imagery, make comparisons between humans and plants or animals, use dialogue, address readers directly, and so on.

The following example demonstrates how a brochure was analyzed for human interest. The score was determined to be 38, neither low nor high. Although the brochure contains many personal sentences, it has relatively few personal words. Adding more personal words would make it more interesting.

WOODSY OWL ON CAMPING

17 wd
2 pw
3 sent

So, you are going camping! Fine! Here are a few tips to help make your trip more enjoyable.

2 ps

PLAN AHEAD

55 wd
2 pw
5 ps
6 sent

Find out as much as you can about the area where you will be camping. Obtain maps if possible. Know campground locations and types of camping accommodated (tents, campers, trailers). Make reservations or have an alternative plan. Find out what facilities (water, toilets, fireplace, etc.) are provided. This will help in planning what to take.

AT THE CAMPGROUND

53 wd
0 pw
7 sent
5 ps

Select a site. Consider: privacy afforded, distance from facilities, and ease of entry and exit. If using a tent, look for a level, well-drained site. Bring tent poles and pegs, also foam pads or air mattresses. Cutting trees, shrubs, or branches is forbidden at most campgrounds. Check bulletin boards for rules and procedures.

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Wd = words
pw = personal words (circled)
ps = personal sentences (checked)
Sent = sentences

CAMPGROUND COURTESY

47 wd
3 pw
5 ps
5 sent

Respect the rights and privacy of other campers. Place trash in receptacles or take it out with you. Avoid making loud noises at night. Treat signs, tables, and other facilities as if they were your own. Leave your campsite the way you would like to find it.

KEEP THE WATER SUPPLY CLEAN

48 wd
3 pw
4 ps
4 sent

Carry water used for washing yourself or your dishes away from the source of drinking water. Dispose of soapy water, grease, and other waste away from lakes, springs, or streams. Boil drinking water unless you are certain it is safe. Use toilets provided and help keep them clean.

HELP PRESERVE SOIL AND PLANTS

41 wd
1 pw
4 ps
4 sent

Use only designated paths and trails. Leave wildflowers for others to enjoy. If permitted, and you dig holes for any reason, replace soil and sod, then tamp well. Avoid disturbing soil in fragile areas such as stream banks or mountain meadows.

FOOD PREPARATION AND STORAGE

91 wd
3 pw
6 ps
8 sent

Use of a portable stove can be invaluable on a camping trip. If you use firewood or charcoal for cooking, you may have to carry them with you since wood is not always available at campsites. Use the fireplaces provided. Do not leave any fire unattended. Put fires out by soaking with water and stirring with a stick, trowel, or other tool. Do not leave food out while away from camp. Keep all foodstuffs together and store in a safe place. In bear country, put food in car or other vehicle.

ACCIDENTS CAN RUIN YOUR TRIP

35 wd
1 pw
4 ps
6 sent

Guard against them! Familiarize yourself with hazards of the area such as poisonous snakes, plants, and insects; rockslides; or dangerous animals. Know how to cope with them. Keep small children from wandering away unattended.

MISHAPS DO HAPPEN

39 wd
0 pw
3 ps
3 sent

Know what to do if one should occur. Carry a first aid kit and know how to use it. Know how to get in touch with police, park or forest rangers, or others who can help in an emergency.

LEAVE YOUR TRIP PLAN

39 wd
4 pw
1 ps
3 sent

Notify a neighbor, friend, or member of your family of your planned travel route. Should your plans change, be sure to let someone know. Be sure someone knows how to get in touch with you should it become necessary.

GIVE A HOOT! DON'T POLLUTE!

9 wd
0 pw
1 ps
1 sent

Recycle these guidelines by giving them to a friend.

March 1976

Total words = 445
Total personal words = 19
W = (19 ÷ 445) × 100 = 4.26

Total sentences = 50
Total personal sentences = 37
S = (37 ÷ 50) × 100 = 74

Human Interest score =
(3.635)W + (.314)S = 38.7

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Reporting the Results of a Readability Analysis

The report could be organized as follows.

I.   Title of publication, exhibit, etc.
               Brief description of the text that was analyzed.

II.   Objective of the evaluation
               To determine reading ease and/or human interest

III.   Results
               Reading ease score and/or human interest score

IV.   Conclusion and recommendations for improvement

EXAMPLE

Readability Analysis Report

I.   Title of Brochure: "Woodsy Owl on Camping"
This brochure provides basic information on camping, and suggests how to practice low-impact camping.

II.   Evaluation Procedure
The objective of this readability analysis was to determine the reading ease and human interest of the brochure.

To determine reading ease, the average sentence length and the average number of syllables per paragraph were figured and entered into a formula to obtain a reading ease score, which was then compared to a Flesch Scale.

To detrmine human interest, the number of personal words and personal sentences per 100 words was figured and entered into a formula to obtain a human interest score, which was then compared to a Flesch Scale.

III.   Results
The reading ease score = 86.4 on a scale of 0 - 100 where 0 = difficult to read and 100 = easy to read.

The human interest score = 38 on a scale of 0 - 100 where 0 = dull (little human interest) and 100 = very interesting.

IV.   Conclusion
This brochure is easy to read -- sentences are short and concise, and the words are straightforward. The human interest analysis resulted in a medium score of 38 out of 100. Although there are many personal sentences, i.e., sentences addressed to the reader, exclamations, etc, there are not many personal words. Personal words are pronouns that refer to people, words with masculine or feminine gender and the group words "people" and "folk". With more of these types of words the human interest score would be increased and readers may relate better to the brochure's message.

Suggested Readings

Introduction to Evaluation

Ham, Sam H. 1986. *Social Program Evaluation and Interpretation: A Literature Review in* Machlis, Gary E. (ed.) *Interpretive Views.* National Parks and Conservation Association: Washington, D.C.

Tabb, George E. (ed.) 1990. *Report of Findings: NAI/Federal Interagency Council Workshop on Evaluating the Effectiveness of Interpretation.* Madison, WI

Performance Objectives

Hodgson, Ronald W. 1984. "Goal Analysis and Performance Objectives." *in Supplement to A Guide to Cultural and Environmental Interpretation in the U.S. Army Corps of Engineers.* Vicksburg, MS: U.S. Army Corps of Engineers.

Themes

Ham, S.H. 1992. *Environmental Interpretation: A Practical Guide for People with Big Ideas and Small Budgets.* Golden, CO: North American Press.

Lewis, W.J. 1980. *Interpreting for Park Visitors.* Philadelphia, PA: Eastern National Park and Monument Association.

Group Interviews

Medlin, N.C. and Machlis, G.E. 1991. *Focus Groups: A Tool For Evaluating Interpretive Services.* Moscow, ID: Cooperative Park Studies Unit, College of Forestry, Wildlife and Range Sciences, University of Idaho.

Observation

Ham, Sam H. 1984. "Communication and Recycling in Park Campgrounds." *Journal of Environmental Education* 15 (2): 17 - 20.

McDonough, Maureen. 1984. "Audience Analysis Techniques." in *Supplement to A Guide to Cultural and Environmental Interpretation in the U.S. Army Corps of Engineers.* Vicksburg, MS: U.S. Army Corps of Engineers.

Readability Analysis

Fazio, James R. 1979. *Communicating With the Wilderness User.* Forest, Wildlife and Range Experiment Station Bulletin Number 28. University of Idaho, Moscow, ID

Flesch, Rudolf. 1949. *The Art of Readable Writing.* Harper and Row: New York.

Hunt, John D. and Brown, Perry J. 1971. *Who Can Read Our Writing?* The Journal of Environmental Education. 2 (4).

PLANNING FOR INTERPRETATION

By John W. Hanna

A Definition of Interpretive Planning:

> The official guideline for the resource management body
> which sets forth the policies concerning development,
> philosophy and operation of the interpretive program.
> The plan is a single unified design for the integration
> of the interpretive program into the total management
> objectives.

Advantages of Planning for Interpretation:

* Provides an orderly, cohesive system of interpretive
  facilities and services within the management unit
  or system.

* Serves as a guide to a sound program of land acquisi-
  tion and facility development for interpretive use.

* Helps insure an orderly development as opposed to
  haphazard and uncoordinated growth.

* Serves as a guide and stimulator for public moral and
  financial support.

* Encourages continuity of sound interpretive principles.

* Creates a basis for work priorities which are then
  included into the total system development.

* Stimulates the donation of lands, facilities and
  other gifts for interpretation.

* Offers a supporting document to justify legislative and
  budget support for a complete interpretive program.

* Insures the identification of public and private lands
  held for other purposes which must be preserved for
  eventual interpretive presentations.

Logical Steps for the Interpretive Plan:

* Establish a total plan objective.

  Behavioral objectives should be stated indicating desired
  outcome in visitor behavior in relation to the resource
  being used for interpretation.

* Define the Role of Interpretation.

  Define the role of interpretation as it will be incor-
  porated into the total unit master plan. It is essential
  that interpretation be a recognized entity within the
  total unit plan if logical development is to proceed.
  The interpretation development must be compatible with
  the total management objectives of the total resource
  unit. Ideally, the interpretive plan should preceed or,
  be developed coordinately with the unit master plan.

* Inventory and Analysis.

  Inventory and analysis of the resource area should be
  completed with the assistance of qualified special-
  ists. Interpretive resources include resources combin-
  ing to create an ecosystem including the physical en-
  vironments and the biotic communities. Factors caus-
  ing change in the ecosystem such as the impact of man
  are significant. Features of resource management and
  development, including recreational activities should
  be included.

  Inventory should include a compilation of reference
  sources such as libraries, university personnel, his-
  torical societies archeological groups, nature clubs,
  service and political organizations, land management
  agencies, sportsmen clubs, etc. References for pro-
  fessional and political support should be prepared for
  each category of interpretive resource.

  The inventory should be analyzed in terms of the sig-
  nificance of the features, the agency goals and poli-
  cies, the population visiting the area (age, sex, pat-
  ern of use, ethnic background, etc.) and any other so-
  cial or political influence.

  An assessment should be made of the existing conditions
  including current interpretive programs, facilities on
  site, personnel, and past and existing use patterns.

  From the above data, determine interpretive priorities.
  If possible, include input from opinions and desires
  of users as well as professionals when establishing
  priorities.

* The Plan

  All interpretive planning should be accomplished with
  sound principles of interpretation in mind. Freeman
  Tilden's six principles of interpretation can furnish
  broad conceptual guidelines.

All methods of presentation should be considered, making
a sound decision based on potential visitor use in re-
lation to interpretive effectiveness, resource impact,
and costs. These considerations can include but not be
limited to:

+ visitor information centers + publication services

+ highway signs (varied) + auto tours + electronic

communications + wayside exhibits + interpretive rest

stops + scenic overlooks + amphitheaters + museums

+ trails (varied) + demonstrations + living history

+ environmental awareness + non-interpretation.

The planning instrument should include facility
design and placement, some program direction, personnel,
financial, social and political considerations.

* Updating the Interpretive Plan.

Provision should be made in the interpretive plan for a
mandatory periodic updating. The plan should be con-
sidered dynamic in nature. It must be capable of reflect-
ing changing social conditions as well as the integration
of new innovations and research information.

The practical plan for interpretation fulfills a major responsi-
bility of the professional interpreter to his resource and to
his public.

BEFORE THE FINAL PLAN

...the interpretive prospectus

Implementation of the interpretive master plan can be made much more meaningful to the park visitor if an interpretive prospectus is prepared as part of the planning process. The prospectus will lead you through a series of questions that will help you prepare the most effective interpretation of your subject matter.

I. What are the objectives of the interpretive program?

What do you want to communicate? What do the visitors want to see and hear?

Remember the words of Freeman Tilden, "not instruction, but provocation." How do you want your visitor to change as a result of your interpretive program?

You should frequently refer back to your statement of objectives to make sure your plans are designed to accomplish these objectives. Avoid trying to tell all the people as much as possible as soon as possible.

II. What are the factors influencing your selection of interpretive means?

What do you want to communicate and does this in any way dictate your choice of interpretive means? Are there any particular media or methods that are best suited to your message?

Does the message involve sounds or objects? If so, they should be used.

Is the message so detailed or complex that it should be presented in the printed word? Is it important to present the message in a particular location? Is the audience or message so variable that uniformed personnel will be required?

Analyze all aspects of your visitor use picture and how they might affect your interpretive means. What are the most asked questions? Is visitor use even or does it fluctuate? How long do they stay?

What environmental factors should be considered? Is it too hot for outside programs? Will dust foul electronic equipment? Will road noise disturb evening programs?

III. **What are the functions you want to assign to interpretive media?**

Will some of your subjects need to be repeated at different locations or on different levels of presentation?

Your experience should be your guide in anticipating the best media to present your subjects. No subject should be presented through a poorly suited medium.

IV. **What should be included in the outline of interpretive content?**

An outline should be presented describing the message to be conveyed by each audio-visual program, exhibit, publication, talk or other facility or service. If the program materials are to be produced by some other person, the suggested content outlines should be quite detailed.

Will your outlined content achieve your objectives?

V. **What is the research status?**

What specific research actions are needed to prepare the final scripts/plans? Have you allowed enough time to schedule research well in advance of the start of final preparations? Is staff available to accomplish the research?

VI. **What will be the staffing requirements of the expanded interpretive program?**

What existing staff positions are presently committed to interpretation? What new positions will be required? List permanent and seasonal positions needed to man the expanded interpretive program.

Can you fully explain or justify each proposed staff increase?

VII. **How well do your study collections support the expanded interpretive program?**

Will collections have to be added? Where will the new materials come from? Can collections be acquired? Should collections be accepted on loan?

VIII. **How much will it cost to see this prospectus to reality?**

What will the individual segments of the interpretive prospectus cost to develop? Do you have experience in making cost estimates for interpretive projects? If not, seek assistance. Has a nearby park area recently completed a similar project?

An officer in your nearest National Park Service regional office may be able to assist you.

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Taken from: "Interpretive Planning in the National Park Service"
David C. Thompson, Jr., Superintendent
Ozark National Scenic Riverways
Van Buren, Missouri
September, 1967

B. Principles of Interpretive Planning.

1. "Interpretation!" Let's take a moment to define this
word. What does it mean, especially to those of us
working in the park systems, state, local or federal?
Webster says that "to interpret is to explain in
familiar language or terms." Freeman Tilden, in his
excellent book, Interpreting Our Heritage (1957),
defines interpretation as "An educational activity
which aims to reveal meanings and relationships through
the use of original objects, by firsthand experience,
and by illustrative media," rather than simply to com-
municate factual information.

   a. Tilden illustrates his point with six main principles:

      (1) Any interpretation that does not somehow relate
      what is being displayed or described to some-
      thing within the personality or experience of
      the visitor will be sterile. (Our cartoon couple
      cannot understand the tape interview being
      carried on in a soap box any more than a Russian
      understands our concept of freedom -- it's outside
      their experience and other media have to be used
      to make it understandable.)

      (2) Information, as such, is not interpretation.
      Interpretation is revelation based upon infor-
      mation, but they are entirely different things.
      However, all interpretation includes information.
      (Our little archeologist is telling us that the
      Hopewell Indians included copper objects within
      their burial mounds. This is information, but
      to interpret the statement we must explain what,
      how, why, etc., so that we have a meaningful
      concept to retain.)

      (3) Interpretation is an art which combines many
      arts, whether the materials presented are scientific,
      historical, or architectural. Any art is in some
      degree teachable. (The degree of teachability will
      depend to a great extent upon how willing the
      individual interpreter is to practice sound pre-
      cepts of interpretation and to learn certain
      skills, such as showmanship.)

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(4) The chief aim of interpretation is not instruction but provocation. (We are not trying to run the visitor to ground and find out how much he has learned in our Visitor Centers, but we are trying to stimulate him to delve further into the park resources through visiting the main resource or obtaining publications which go more deeply into the subject., e.g., if, as in our previous example, we are able to make him more curious as to how the Hopewells lived, or want to learn more about the American Indian, we have accomplished a great deal of interpretation and the person so stimulated will have a more meaningful experience.)

(5) Interpretation should aim to present a whole rather a part, and must address itself to the whole man rather than any phase. (A lively explanation by a good interpreter of the sculpture at Mount Rushmore must include not only how it was accomplished, but a deep regard for the principles of democracy and the achievements of the four Presidents.)

(6) Interpretation addressed to children, say, up to the age of 12, should not be a dilution of the presentation to adults, but should follow a fundamentally different approach. To be at its best, it will require a separate program -- one which as our character indicates may be a little jarring to the adult mind. (However, their experience must be coupled with their past training and must be kept simple. Intangible concepts such as democracy, often are not understood by children due to immaturity.)

b. Most interpreters agree on the general purpose of interpretation in a National Park - to stimulate the visitor's interest, and promote his understanding and appreciation of the park, thus making his visit more meaningful and enjoyable. The methods of accomplishing this are also generally understood and agreed upon, but the selection, coordination, and production of the specific facilities and services always introduces some differences of opinion. Since these are matters of judgment, personality and imagination, rather than fixed procedures or facts, these differences are normal. Furthermore, they are desirable so long as we have a method of resolving them to achieve our stated purpose without stifling the creativity and original thinking of our staffs.

While no rigid formula for interpretive planning is possible, a few ideas can be stated as principles which apply to most, if not all, interpretive planning situations.

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Before we promote understanding, we must stimulate the visitor's interest, his desire for such understanding. Where and how we will do this are important interpretive planning decisions,particularly as they affect our initial interpretive facilities, normally our visitor centers. But we expect more of our visitor centers than initial interpretive and orientation service. We want to present a comprehensive summary of the park story, to offer understanding as well as information, depth as well as breadth, and we want to impart a little of this before we offer a lot. One key to this problem is wise selection and assignment of functions to interpretive media and methods. In each planning situation we will use certain methods to introduce themes and stimulate interest, others to support and extend this initial offering, and still others, perhaps, to add depth, detail, and summarization. While there will usually be a preferred order of experience, we can seldom insure that all visitors will follow that order. This must not lead us to attempt to make all media serve all functions, regardless of the order in which they are encountered. We must still plan for an ideal, while recognizing that we will not always achieve it.

This discussion does not point to neat and simple statements of principles, but we can say that:

(1) Each part of an interpretive job should be assigned primarily to the medium or method best suited to the performance of that job in the specific situation.

(2) Each part of an interpretive job may be assigned secondarily to techniques of presentation which can effectively support, supplement, or when desirable, duplicate the function of the primary medium.

(3) No interpretive job should be assigned either primarily or secondarily to a medium which is not well suited to its accomplishment.

C. Use of these principles requires a basic understanding of the advantages and limitations of each interpretive method and medium. A brief summary of these characteristics follows:

(1) Personal Services.

(a) Advantages. Personal services have, with good reason, been considered the ideal interpretive method when they can be used. All other interpretation may be considered sup-

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plementary to direct personal communication.
It has the unparalleled advantage of being
alive and capable of being tailored to the
needs of individuals or groups. It can take
advantage of unexpected and unusual opportunities.

Most visitors enjoy and are therefore receptive
to personal services. The personality of the
interpreter can enhance the appeal of the message
and the effectiveness of communication and can
enable deeper penetration of subject matter.

The possibility of using group reaction to
stimulate individual interest and encourage
desired attitudes is an important potential
advantage.

Two-way communication makes possible a degree
of informality which has characterized the
traditional National Park interpretive
experience.

Beyond these general advantages of personal
service each kind of program has its indi-
vidual advantages.

Guided walks capitalize on the ability of the
park features in their normal environs to
stimulate interest and enhance understanding.
Visitors may experience the park with all senses.

Campfire programs can be a uniquely satisfying
experience enhanced by the enjoyment of song,
the romance of the campfire, and the simplicity,
informality and relaxing mood of the surroundings.
They offer unparalleled opportunity to encourage
appreciation and concern for protection of park
values.

Demonstrations are an especially meaningful
method of presenting explanations. They have
a quality of reality and authenticity that makes
them fascinating, entertaining and memorable.

(b) Limitations or Disadvantages. To achieve the
advantages of personal services we need talented
and trained interpreters. They are expensive
and in short supply.

Even the best staffs need proper management
for sustained efficiency. A good personal
service program, then, requires management
ability which is also expensive and often in

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short supply.

Personal services can be offered for relative-
ly limited periods as compared to the self-
service interpretation available at comparable
costs.

The long-term results of an investment in
personal services are often not visible or
demonstrable.

(2) Audiovisual Programs.

    (a) General Comments.

        1 Advantages. AV programs may be and usually
are presented under conditions highly favorable
to audience receptivity. Visitors are relative-
ly isolated from visual and audible distrac-
tions and they usually are seated and comfort-
able. The feeling of depth and reality gained
through the brilliance, color, size and perhaps
motion of the projected image enhance its
effectiveness in holding attention and convey-
ing a message.

        The use of sound relieves the visitor of the need
to alternate reading and viewing, and his attention
to the program is relatively uninterrupted.

        Music can evoke or enhance emotional impact
and, skillfully used, it can greatly improve
the effectiveness of the program.

        Any recorded message offers the opportunity
to channel multiple sound tracks to individual
earphones to serve heterogeneous audiences in
several languages or several levels of detail
or comprehension.

        Projected programs are particularly suited
to presenting explanations of a sequential
or developmental nature.

        2 Disadvantages or limitations. Providing
the physical set-up for AV programs may be
expensive, particularly for facilities of
large capacity.

        Continual attention to equipment and projectu-
als is vital if program quality is to be main-
tained. Standby equipment is not just desirable;
it is essential. For more complex types of equip-

ment, maintenance requires <u>specialized</u>
service, normally not available in the park.

In National Park situations, AV programs used
without personal introduction preceeding the
program may seem objectionably mechanical,
impersonal or sophisticated.

Overdependence on automatic programs can lead
to embarrassment. There is a temptation to
consider them a substitute for, rather than
an aid to, skilled and ready interpreters.

In addition to these general advantages and
limitations, various types of AV programs
have some specific strengths and weaknesses.

(b) <u>Motion Pictures</u>.

<u>1</u> Advantages. Their ability to introduce
and quickly survey subjects "once over lightly"
makes movies especially useful as an introduc-
tory medium. They offer the opportunity for
dramatization to evoke emotional response and
personal identification with the material
presented. Through these qualities movies
can quickly stimulate interest in unfamiliar
subjects.

They are particularly suited to explaining
processes involving sequence of motion, such
as military actions, migration, and geomor-
phological processes. Animation can reduce
a complex diagrammatic explanation to a simple
meaningful sequence.

Time lapse photography and other special
techniques produce effects uniquely adapted
to certain specific interpretive jobs.

<u>2</u> Disadvantages or limitations. Commercial
films have accustomed audiences to technical
excellence. Production of top quality motion
pictures requires the use of talented pro-
fessional people, whose services are expensive.

To date limited reliability of automatic equip-
ment restricts use of motion pictures to
attended locations.

<u>Relative complexity of equipment makes stand-
by projectors and films mandatory to insure
uninterrupted service</u>. Both equipment and

films require continual attention.

Completed films are difficult and costly to change.

In common with all other media, motion pictures can be misused and an assortment of particular disadvantages may be brought into play. In this brief evaluation of techniques we can only consider their characteristics when they are properly used.

(c) Slide and Filmstrip - Sound Programs.

1 Advantages. Slides can reduce complex explanations to simple bite-sized morsels presented individually in sequence.

Although they must suggest motion with arrows, or a series of static illustrations, slides can do a creditable job of presenting explanations involving motion.

Dramatization and emotional impact may be effectively conveyed by slide programs, particularly through the audio message.

Slide programs are relatively inexpensive, easily changed and require equipment less complex and expensive than motion pictures.

2 Disadvantages or limitations. Many of the apparent disadvantages of slide programs result from deficiencies in technique rather than inherent deficiencies of the medium. Inept bridging of visual gaps to keep the pictures in pace with the narration produces slides which compete with the audio sequence. Effective use of art or scenics can remedy this difficulty, but professional technique is needed. Narration, especially dramatization, must be done on a professional level, and so must photography. The relative simplicity of producing slides and recording sound can in themselves be disadvantages, since the assumption that "anybody can do passable job" often produces just that.

Reduced visual reality (hence visual appeal) of slide programs as compared to motion pictures is the major limitation beyond those ascribed to AV programs in general.

All AV programs move at a 'fixed pace which may not be ideal for every visitor.

AV programs require varying degrees of super-vision or attention and thus their period of availability is restricted as compared to unattended interpretive devices, such as signs or wayside exhibits.

(d) Audio Messages (Recorded Message Repeater
        Installations).

1 Advantages. When the minimum text required to convey a message is still so long that few visitors will read it, an audio device may convey the message more successfully.

Sound may be delivered through a loudspeaker to serve large groups when it will not interfere with other activities within hearing range. It may be piped to hand phones to eliminate such interference and a selector switch may channel sound to a loud-speaker for use with occasional groups.

When a visitor must relate an exhibit to landscape features (such as a tactical action on a battlefield), an audio message can simplify his task by relieving him of the need to look also at a printed label.

When an exhibit is necessarily complex graphically (e.g., an explanation of ecologi-cal interrelationships), an audio message may eliminate further visual competition in the form of labels.

When parts of a message apply to changing aspects of an exhibit, such as spotlighting of certain elements, a recorded inaudible signal provides a mechanism for coordinating the message with this change.

Audio devices provide an opportunity to enhance a message with personality, local color, first person authenticity, historic recordings and pertinent natural sounds.

2 Disadvantages. While message repeaters have generally proven highly reliable in operation, they require steady current, regular maintenance, and they are subject to occasional mechanical failure. Standby units should be available. Their reliability may encourage overdependence on the machine.

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(3) Exhibits.

    (a) <u>Museum Exhibits</u>.

        <u>1</u> Advantages. The visitor may use exhibits as long, as briefly, or as often as he wishes, at his own pace, and whenever the exhibit room is open. He feels no sense of commitment to a viewing period of fixed length.

        Museum exhibits may be used to good advantage when bad weather, darkness, insect pests or other conditions restrict outdoor activities.

        Real objects in a dramatic exhibit can make a strong, lasting visual impression in a few seconds. They can catch attention, arouse interest and some can communicate successfully without words. An appealing piece of primitive sculpture, a metal pot chewed by a bear, a stack of lumber penertrated by a minie ball, or a diorama of a prehistoric bison hunt can tell much and suggest more.

        By displaying real objects of historic significance exhibits can lend reality or "presence" to interpretation which, even on the historic site, seems abstract or lacks a sense of personal association. Seeing the model boat that Lincoln whittled, the Wright Brothers' tools, George Washington's tent, somehow makes these people more human and the history more alive.

        Pictures, maps and diagrams in an exhibit can effectively present ideas so long as they do not require long verbal explanation or complex graphic treatment.

        Exhibits are particularly good at suggesting rather than telling. They can pictorially suggest the interest and appeal of certain park features rather than telling of their interest. They can stimulat interest by not telling too much. Media better suited to exposition should do most of the telling (personal services, AV programs, publications).

        Museum exhibits are best used to dramatize and comment on <u>the specific parts of a story which involve interesting objects or striking illustrations</u>.

        2. Disadvantages or limitations. The fact that visitors using exhibits are usually standing brings into play the old saw that the mind can absorb what the feet can endure. Most people are

disinclined to read a great deal while they are
standing, especially if the reading introduces
new ideas and information. Providing seats
in front of exhibits relieves the feet, but
requires the work of sitting and standing for
each exhibit.

All the contents of most exhibits are visible
at once. While they may be complementary
and mutually supporting, they are, in a way,
mutually competing for attention. Thus the
number of objects, illustrations, words and
design elements in an exhibit, must be sharply
limited if it is to function quickly and have
dramatic impact. To some extent the same is true
of the various exhibits in a room. They compete
with one another for visitors' time and attention
A few exhibits in one place are better than many.
For these reasons museum exhibits are not good
devices to convey many ideas or facts, or continuous
narratives requiring sequential presentation.

Exhibits alone will seldom present effectively
a complete, well-rounded story in a logical
sequence because few people will use them that
way. Nevertheless, the great majority of
National Park Service Centers have used museum
exhibits as the primary narrative medium. In
most cases exhibits could more effectively be
used to substantiate those parts of the story
involving objects, while other media, primarily
AV programs, personal service programs and publica-
tions, should carry the narrative.

(b) Wayside Exhibits.

1 Advantages. The park feature in its normal
setting serves as the object which stimulates
interest, excites curiosity and encourages use
of the wayside exhibit at the most effective time
and place. Because a wayside exhibit can use the
motivating quality of a park feature, it can effect-
ively tell much more than an exhibit seen before,
after or away from that feature.

Each wayside exhibit is used alone or with only
one or two others at most installations. Thus
the visitor sees relatively few labels and is
encouraged to read.

If they are well placed, wayside exhibits can get people out of their cars and they can encourage people to use trails.

Modern techniques and materials have made wayside exhibits very resistant to weathering and vandalism, easy to maintain and repair, and relatively inexpensive as a long-term interpretive investment. They are available for use at all times. They may be lighted for use at night.

Exhibits which they can use without leaving their cars are the only form of on-site interpretation which some sedentary visitors can or will use.

<u>2</u> Disadvantages or limitations. In some situations where the vandalism problem is extreme, no unmanned facility is practicable.

Visitors must leave their cars to use many wayside exhibits. The frequency of willingness to do so is relatively low. Climbing in and out of modern cars in not easy.

Despite advances in materials, the techniques of illustration possible in field exhibits without glass or plastic protection are still more restrictive than those used in museum exhibits. The use of glass and plastic almost always introduces serious reflection problems.

Objects of considerable value cannot be safely used in most wayside exhibits.

Unfavorable outdoor environment (weather, darkness, insects, etc.) reduces the use of wayside exhibits.

(4) Self-Guiding Trails and Tours.

(a) <u>Advantages</u>. Visitors following trails or tours see park features in their normal or natural setting. This experience is more realistic and is often more meaningful and memorable than other interpretation.

Self-guiding trails and tours are relatively inexpensive to build, maintain, or change. They can serve large numbers of people.

Some visitors hesitate to commit themselves
to conducted trips at scheduled times and of
fixed length and pace. They may use self-
guiding trails and tours whenever and as
long as they wish, at their own pace, with
as much interpretation as they wish.

Self-guiding facilities are appreciated by
those who prefer individual or family activi-
ties to organized group activities.

Many parents enjoy explaining things to their
children. Self-guiding trails and tours help
them to do this.

Self-guiding trails and tours offer the
opportunity to combine (in any desired pro-
portion) an interpretive activity with another
activity such as hiking, riding, boating,
wildlife watching or photography.

If guide publications are used, they may have
souvenir value.

Audio stations or portable sound-guide devices
offer unique advantages discussed under AV
programs.

(b) Disadvantages or limitations. With all self-
guiding facilities, communication is one way.
Questions must wait until the visitor finds
an interpreter - if the interest lasts that long.

The written message conveyed by each individual
sign or exhibit-in-place must normally be very
brief if the desired level of interest is to
be maintained. Guide booklets offer an oppor-
tunity for somewhat longer texts and a two-
level approach (large and small lettering)
but communication is still limited by the
visitor's willingness to read.

Presenting a progressive or cohesive story
on a tour requires a continuity of visitor
interest much easier to maintain with per-
sonal rather than a self-guiding interpretation.

Safety or protection factors prevent use of
self-guiding trails and tours in some situations.

(5) Publications.

(a) Advantages. The visitor may carry publica-

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tions with him and use them when and where
he wishes. This is especially helpful in
literature used for orientation and for
identification of park features.

Using publications need not take time which
a visitor could spend in the field. An
interested visitor can get literature before
coming to the park or he may use it after he
leaves or in the evenings during his visit.
Publications may be used when the visitor is
seated, at leisure, and free of distraction.

Publications may be prepared in several levels
of detail without competing with one another.
A visitor may read the free folder for a
simple summary of an area's geology, he may
buy a more detailed popular publication, or,
if he wishes, a technical study. This multi-
level approach is seldom possible or practi-
cal without competition between levels of
treatment in other media.

Publications have excellent souvenir value.

A publication program may be wholly or
partially self-supporting.

Publications are the best means of furnish-
ing detailed reference information.

They may be produced in several languages.

They lend themselves to a great variety
of illustrative techniques.

They are well suited to presenting develop-
mental and sequential material.

(b)   Disadvantages or limitations. Relatively
few visitors get publications before arriving
in the park. Not many seem inclined to do
much reading during their stay. The extent to
which publications are read after they leave
is unknown, but many factors can interfere
with the intention to read them.

Effective use of guide booklets requires
greater continuity of interests than does
use of in-place interpretive devices.

Many visitors who will listen to an interpretive message will not read it. For them, the value of publications is limited.

The initial cost of publishing literature in large enough volume to permit a low unit price may be very high.

Because of these and other factors, publications other than guide booklets are usually used to supplement or back up other interpretive media, rather than as the sole means of presenting a subject.

Testing for "Interpretiveness" in Cultural Heritage Presentations

BY WOODY HARRELL

In developing the quality history talk/tour, an interpreter must move beyond proper program planning, logistics, organization, presentation, and communication techniques. These basic essentials are only the starting point for successful interpretation. A technically correct presentation may still produce "generic" interpretation: a presentation without spark or excitement. Based on the nature of the resource and several of Freeman Tilden's principles, this paper examines programs dealing with cultural themes. It then suggests questions which may help measure the "interpretiveness" of such programs.

Recently, a historic house tour reminded me that error free communication techniques alone do not equal quality interpretation. The presenter that day gave a polished performance. She had obviously spent considerable time crafting her presentation. Her program started exactly on time. An evaluator would have given her high marks on program execution and communication skills.

I'm sure that her facts (and she had a world of them!) were all correct.

However, she took no risks with her program, and made no attempt to challenge her audience. Instead, she reminded me once again how often historian/guides set their program standards too low. The result is "generic" interpretation. As was the case with this tour, such presentations usually miss the mark in interpreting a cultural site to visitors, and many walk away feeling disappointed.

This experience led me to consider again what elements contribute to the "interpretiveness" of a cultural interpretive program. What elements do generic programs lack that make certain interpretive programs special? And are these elements different from the key interpretive elements in quality natural/environmental interpretive programs?[1]

A universally recognized symptom of generic interpretation is a lack of enthusiasm. If an interpreter is to convey the importance of her topic to an audience, she must first be excited

about it herself. As Dave Catlin has said, in interpretation, as at a felony trial, conviction must come before execution.

Another key characteristic of the generic history talk is a preponderance of facts. Freeman Tilden counseled that information is not interpretation. Contrary to Tilden's dictum, in practice, live cultural interpretation often sinks under an overwhelming load of information. Certainly, facts are the professional historian's "stock in trade." No cultural interpreter can communicate confidently with the public until a historian's mastery of a particular cultural site's factual data is attained. However, a burden of facts can prevent an audience from gaining fresh ideas or insights on the topic at hand. If the listener cannot associate the facts presented with something familiar to him, the listener is likely to tune the speaker out.

A third characteristic of generic interpretation is the lack of a strong theme. The non-generic interpreter recognizes the importance of removing

theme development from the "paper exercise" category. She uses the theme process to produce a key "take home item" that becomes the heart of the program. This "point of view" approach can transform a program from a broad shotgun blast to a tightly crafted, on-target message. Narrowly developing a theme keeps the interpreter on track, and produces a presentation with substance, conviction, and sizzle.

A strong theme is equally important for cultural or natural/environmental interpretation. However, with surviving historic resources, we are interpreting a direct, almost mystical link with the past. Our relation with that past poses several pitfalls in theme development.

When the interpreter begins planning a historical presentation, she takes on the responsibility of representing people from an earlier time. Whether significant or obscure, these figures can no longer speak for themselves. We all carry a large load of 20th Century experience and culture. This baggage hinders modern interpreters in commenting with certainty on how people of the past thought or felt about issues or events.

Despite our best efforts to study the few surviving remnants of their time, theirs is a past we can never fully know or understand. When dealing with different values and contexts from an earlier time, we can never assure ourselves of reaching absolute Truth with a capital "T." If we try to interpret past events based on our modern values, we may draw incorrect parallels between ours and previous times. There is also the constant temptation to use our presentations to moralize about the past based on our current standards.

Thus, the non-generic interpreter faces a dilemma. She realizes she should interpret with a point of view. Yet she also realizes she cannot ethically speak for persons no longer alive. This dilemma forces interpreters to set a high standard of historical honesty. This standard must go beyond historical accuracy. Being a solid historian is only the first step for the cultural interpreter. Because of the power our locations give our messages, we must carefully choose what those messages will be. Not only what the interpreter tells, but also what she leaves out of the presentation, will affect the impact of the program.

What then should be the guidelines for a cultural theme? The best interpretive programs are always resource-based. This principle is even more important at historic sites than at natural ones. The cultural interpreter should ask herself two questions: 1) "Am I relating my presentation to the surviving resources found here?" 2) "What can I interpret better here than I can anywhere else?" If the interpreter can give a particular program as effectively in several other locations, she

is missing a special chance. The key question is "What better use can I make of this rare opportunity for reaching this visitor at this particular resource?"

For example, an interpreter could travel to Civil War Roundtable meetings all over the country to discuss the Battle of Chickamauga. She could detail the intricate troop movements of Union and Confederate armies proceeding the battle. However, for the interpreter standing in a cedar glade on the battlefield today, this is not the most obvious Chickamauga theme. It is the battle of Chickamauga itself as the individual soldier's fight. At Chickamauga, rather than moving troops around the field like pieces on a chess board, generals committed their troops to the thick undergrowth. Troops fired blindly at unseen enemies only a few yards away. Properly introduced, the surviving historic scene has the power to create for visitors an emotional response about the nature of this bloody battle.

We preserve our historic sites and objects for one overriding purpose. These resources can be the most effective means of eliciting a sense of commemoration for our visitors. The interpreter's main job is to translate the significance of resources and their historical associations only if, when, and to the degree visitors need the translation.

Our first goal is to direct the visitor's attention to surviving resources. Second, we must provide the interpretation needed for those resources to cause a reawakened knowledge or growing curiosity about their associated events. If the interpreter works from these two principles, then she has served a critically important function.

Using these resource principles plus six from Freeman Tilden as a
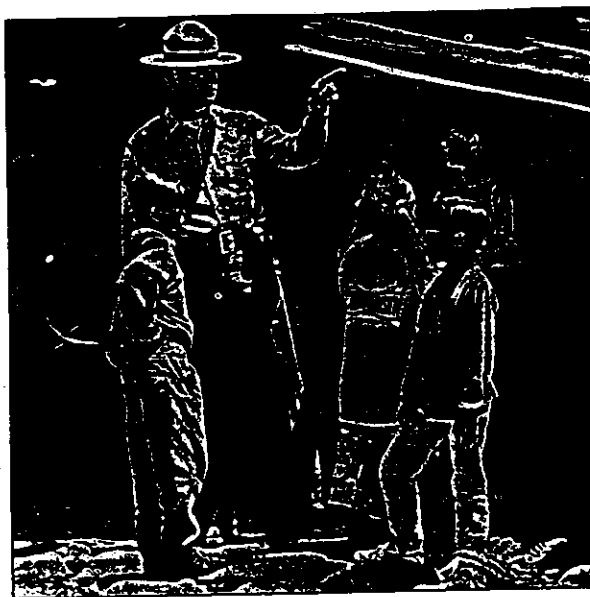
Ranger Bob Anderson interprets the significance of the Yurok Indian Village at Patrick's Point State Park, CA to a group of third grade students. An Alan Leftridge photograph.

framework, I propose using eight groups of questions as a starting point for evaluating the interpretiveness of the history talk/tour. I encourage others to add or subtract from this list to fit their individual needs.[2]

Enthusiasm/Love of the Resource.
• Was the interpreter truly excited by what she was sharing with visitors? Did she make visitors care about/fall in love with the resource?
• Did the interpreter create a sense of excitement and anticipation during the presentation?
• Did the interpreter successfully use the element of surprise?
• Was there a sense of spontaneity and animation?
• Was the program a lyrical endeavor and experience?
• Were the words and language used descriptive and colorful, rather than bureaucratic or didactic?
• Was the program fun and entertaining?

Personalizing the Message.
• Was the relationship between the interpreter and the visitor a human encounter?

• Was the presentation relevant to the visitor's personality or experience? Was the program customized by the interpreter for the particular audience?
• Did the talk/tour relate to the purpose of the visit to the resource?
• Can participants become enthusiastically involved in the program?
• Did the interpreter use contrasts and similarities to help the visitor understand and relate to the message?
• Did the interpreter treat each visitor as a unique person and help them have individual experiences?
• Were there ways the program struck home?

Revelation Versus Information.
• Was the program centered on nearby surviving historic sites, scenes, or objects?
• Did the interpreter carefully choose to present facts that support the theme, or did she present a great deal of information which her audience will immediately forget?
• Was the program more effective presented in this location than it would have been if presented anywhere else?
• Did the interpreter set the scene for the visitor to have revelations about the site or resource?
• Did the interpreter use the park's surviving resources or setting as a stage upon which visitors could picture characters and stories connected with the historic event commemorated?
• Were the audience just passive watchers or listeners, or were they involved in doing something? If not physically, did the audience participate with their imagination, intellect, or emotions?
• Did the visitor ever go "WOW!" in the mind or heart?

The Use of Art.
• Are elements of inventiveness, creativity, and imagination obvious in

the talk/tour?

• Were there moments of drama and suspense?

• Were there moments of comedy and tragedy? Was the interpreter able to make the visitor both laugh and cry?

• Did the interpreter offer a different way of seeing and saying the "same old things?"

• Did the interpreter use her imagination? Did the interpreter lure visitors into using theirs?

• Was there a good balance of "share and do" with "show and tell?"

Provocation.

• Was the program interest-arousing and thought-compelling?

• Did the program have a definite point of view? Was this point of view resource-based? Did the program avoid moralizing about people or events of an earlier time?

• Did the interpreter practice the art of suggestion?

• Did the interpreter appreciate the eloquence of silence and use it effectively?

• Did the interpreter challenge visitors' previously held views?

• Did the program invite participants to think in new ways? Did the interpreter allow visitors time to internalize information presented, and work out their own values and opinions on the subject?

• Will the program cause a change of behavior?

• Did the presentation both satisfy and expand visitor curiosity?

Interpretive Wholes.

• Was the program's theme developed in a reasonably complete manner?

• Was the visitor led to discover essences?

• Did the interpreter involve the whole persona of the visitors? Did the audience use not just their intellect, but their curiosity, emotions, and dreams?

• Did the interpreter personalize parts of the presentation by sharing her feelings, experiences, and appreciation of the resources?

• Did the interpreter seek the audience's help in unraveling a mystery?

• Did the interpreter elevate elements of the common to the epic? Conversely, did the interpreter simplify without over-simplification? Did she put complex stories accurately into a conceptual framework visitors could comprehend?

Historical/Intellectual Honesty.

• Did the interpreter show a respect for the cultural resources she was interpreting? Did she have an understanding of their unique evocative power?

• Does the interpreter have a strong knowledge of the historic period discussed, based on a thorough study of primary and secondary sources? Can she project credibility and an air of controlled authority?

• If surviving accounts record quite different interpretations of the same event, were the various possibilities presented in an evenhanded manner?

• Did the interpreter translate the significance of resources and their historical associations? Did the program draw a historical relationship between the surviving object or place and a significant person or event?

• Did the program relate the specific link between surviving historic resources and history? Or did the program hide, confuse, or diminish real resources?

Overall Effect.

• Was the program a memorable experience? Did it have "take home" value?

• Did the program create a sense of process, rather than just produce a product?

• Did the interpreter serve as facilitator, effectively getting visitors in touch with the resource?

• Through the program, did the surviving historic resources call vividly to the visitors' memory significant, if forgotten, misunderstood, or unappreciated, events and people?

• As a result of this "calling to mind" (commemoration), will visitors now begin their personal process of historical inquiry and evaluation?

[1] Tom Danton first presented the idea of "Interpretiveness" in the July 20, 1987, issue of the *Sharing* newsletter. He edited this newsletter while working in the National Park Service's Midwest Region Office of Interpretation. Tom is now Chief of Interpretation at Saguaro National Monument.

[2] Ron Thoman expanded and enlarged Tom Danton's concept of "Interpretiveness" in three August 1987 issues of the *Sharing* newsletter. His work sparked many of the questions. Ron carries on the tradition of interpretive master Josh Barkin, while serving as Chief of Interpretation for the NPS's Rocky Mountain Region.

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EVALUATION TOOLS FOR PERSONAL SERVICES INTERPRETATION

By Michael D. Griswold

During the summer of 1990 quantitative evaluation tools for interpretation were developed and tested at Florissant Fossil Beds National Monument. Application of a visitor survey and analysis tools determined the interpretive performance of each interpreter. Surveys and tools were applied repeatedly during the summer to "track the progress" of interpreters and were used as an aid at evaluation conferences. Results show that the tools were valid, reliable, and a practical addition to park management.

Many writers have cited the need for scientific indicators of interpretive program effectiveness (Marsh, 1986). Evaluation research involving interpreters, interpretive supervisors, and visitors was conducted at Florissant Fossil Beds National Monument. The purpose of the project was to develop and test quantitative evaluation tools for interpretation, and to provide supervisors with information about program outcomes and interpreter performance (how effectively interpreters communicated interpretive messages as reflected by visitor understanding of these messages). This paper will emphasize the methodology of the study as a practical help to those interested in evaluating programs at their facility.

METHODS

The twenty-minute natural history talk at Florissant Fossil Beds was selected for study. During the summer months, these talks were given on the hour from 10:00 a.m. to 6:00 p.m. Presentations of six intern interpreters were evaluated. Evaluation instruments included a short visitor survey and an evaluator survey that supervisors completed while auditing programs. These instruments were used to determine the interns' interpretive performance.

Development and Testing of Research Instruments.

Development of research instruments involved clarification of interpretive messages, drafting performance objectives, identifying research needs, and writing survey questions. In addition, the visitor survey and related analysis were tested for reliability and validity.

> *"For interpretation to emerge as a true discipline in the years ahead and to garner increased management support, quantitative evaluation methods will need to become "standard equipment" for every park interpretive program."*

Interpretive Messages, Objectives and Research Needs.

The primary messages of the natural history talks were: the *theme* of changing climate and ecosystems at Florissant Fossil Beds, high country *safety* hazards, and the *mission* and responsibilities of the National Park Service. With staff input, the researcher rewrote these various interpretive messages in terms of "performance objectives" (Mager 1962). A performance objective asks the learner to do a measurable action at a certain level of performance. For example, the "theme" performance objective read:

> When asked to compare and contrast Florissant's climate and ecosystems of the Oligocene with its current climate and ecosystems, the visitor will list (write) at least two differences between the two time periods.

Components of Theme Message (acceptable answers): steady temperature/fluctuating temperature; warmer/colder; moister/drier; elevation lower/higher; plant & animal differences covered in talks.

Staff wanted to know the following about interpreter communication of the interpretive messages:
- Were interpreters meeting minimum interpretive standards? Did each interpreter, and the group of interpreters, communicate at least two components of each message (theme, safety, and mission) to a majority of visitors?
- Feedback response of interpreters. Did performance change after interpreters received feedback at evaluation (audit) conferences?
- At what cognitive level did interpreters communicate the theme message? Were visitors coming away from natural history talks with only a set of facts, or did they have a sense of the "meanings and relationships" of these facts? (Did interpreters "interpret?")

Visitor Survey Design.

A visitor survey was designed. Three questions measured visitor comprehension of factual information contained in theme, safety, and mission messages (See Figure 1, questions 2a, 3, and 4). Answers were "scored" according to the performance objectives, on a "0 - 3" scale (0 = no acceptable answer, 3 = three or more acceptable answers).

Interpretation seeks to go beyond the communication of information to engendering visitor understanding of the "meanings and relationships" of the facts (Tilden 1977). To measure this kind of understanding, an essay question was constructed according to guidelines set down in "Taxonomy of Educational Objectives: The Classification of Educational Goals," (Bloom 1956).

The Taxonomy includes six levels of cognition. The first level of cognition, knowledge, involves the recall of facts. Knowledge may include recall of specifics (dates of the American Civil War) or of universal principles or theories (theory of evolution). Knowledge does not include the ability to manipu-

late or apply facts, only the ability to recall them (Bloom 1956).

The next cognitive level is comprehension, the ability to state the meaning of each part of a communication. At its basic level, translation, it involves putting the communication into other terms, such as explaining the meaning of a metaphor. At its higher level, interpretation, the individual is thinking about the interrelationships of ideas and their relative importance to each other. The Taxonomy states that in interpretation, a person

"...must go beyond . . .part-for-part rendering of the communication to comprehend the relationships between its various parts, to reorder, or to rearrange it in his mind so as to secure some total view of what the communication contains and to relate it to his own fund of experiences and ideas," (Bloom, 1956, p. 93).

Using the Taxonomy guidelines, an essay question and corresponding analysis tool were constructed to determine to what degree visitors approximated an "interpretive" understanding of the theme message (See Table 1). A panel of four judges rated responses on a scale of 0-3 ("3" representing an "interpretive" understanding of the theme, and "0," no understanding of the theme). A response was considered to represent an interpretive level of cognition if the mean score was greater than two. Each interpreter, and the group of interpreters, received an interpretation score—the percentage of respondents demonstrating an interpretive understanding of the theme message.

Tests for Validity and Reliability.

Content validity is the accuracy with which survey questions elicit the information sought (Leedy 1985). The content validity of factual survey questions was tested by comparing responses to the intent of the question. For instance, a question about safety asked:

Were safety concerns mentioned or discussed in the talk you attended today? Yes__No__
If "Yes," what were they?

The performance objective for this question read:

When asked to recall safety concerns discussed in the talk, the visitor will list (write) at least two concerns.

Acceptable answers include: high altitude, hypothermia, lightning storms, sun protection, dehydration, ticks, and special announcements.

The intent of this question was to determine if visitors had received an interpretive message regarding personal safety hazards in a mountain environment. Therefore, valid answers to this question contain information

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Table 1: Directions for the Essay Question Analysis Tool (excerpt).

How does the story of Florissant Fossil Beds relate to us today?

- An example of an ideal answer (a "3")
  "Changes in climate and environment can lead to extinction—humans are producing changes at a terrific rate today and need to beware."
- The underlined sentence summarizes the Florissant Fossil Beds story.
- The italicized sentence expresses a current environmental topic.
- The boldfaced words indicate the relationship between the two ideas.

Please score responses on a 0-3 scale as follows:

0=No statement of the theme. Answer is vague or irrelevant to the subject of the talk.
1=A short or incomplete answer that names one of the themes, but does not state the theme in a complete manner.
2=Explains a theme from the talk in a complete manner.
3=Expresses a theme from the Florissant story, a current environmental issue or scientific principle, and shows a relationship between the two.

Figure 1: Visitor Survey (pages 1 and 2 only)

Florissant Fossil Beds Visitor Study

Please answer the following questions based on the talk you heard today. If the ranger did not talk about the question, simply write "not covered." This information will help us serve you better and improve future programs.

About the talk:
1. When did you attend the natural history talk? (Circle one)
a) TIME: 10:00 11:00 12:00 1:00
      2:00 3:00 4:00 5:00 6:00
b) DAY AND DATE:

2a) Do you recall some differences in climate and ecosystems (plants, animals and surroundings) between today and the time of the fossils?
THEN   TODAY

2b) Why did many of Florissant's plants and animals from 35 million years ago become extinct?

2c) How does the story of Florissant Fossil Beds relate to us today?

3. Were safety concerns mentioned or discussed in the talk you attended today? Yes__No__
• If "Yes," what were they?

• Were you aware of these safety factors before you came?

4. According to the talk, what is the mission of the National Park Service and its responsibility for this area?

5. Do you have any suggestions to make the program more informative and enjoyable?

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about the personal safety of people in parks. If many answers were deemed invalid, the content validity of the question was suspect. For this study, the arbitrary figure of 75% was chosen (75% of answers had to be valid for the question to possess sufficient content validity).

The content validity of the essay question was also assessed using the analysis tool (See Figure 1). Any answer that did not meet at least part of the tool criteria (received a mean score of ≤ .5) was deemed invalid. Again, if 75% of answers were rated ≥ .5, the question was declared valid.

The reliability of the essay question analysis tool was verified by a statistical comparison of judge ratings. An "agreement index" statistic was developed to assess the overall agreement of the judges.

Where:
• J = the mean of the four judge scores for a particular case
• j₁, j₂, j₃, j₄ = individual judges' scores

• D = The value representing the

maximum theoretical disagreement between judges. For the scale 0-3, this value is "6".

$$AI=1-(|\,j_1 - J\,| + |\,j_2 - J\,| + |\,j_3 - J\,| + |\,j_4 - J\,|)$$
_____
D

(This maximum theoretical disagreement is represented by a case where two judges think the answer is of high quality (a "3") and two judges think the answer is irrelevant (a "0"), yielding the numbers 3,3,0,0.)

The agreement index (AI) produced a value on a scale of "0" to "1" for each case. A value of "0" indicated complete disagreement and a value of "1" indicated complete agreement. To obtain an overall agreement index, a mean of an overall agreement index (AI/N). If the overall agreement index indicated that judges were in agreement in a majority of cases, the criterion was accepted as reliable.

Evaluator Survey.

It was of interest to compare supervisor assessment of interpreter performance with the quantitative tools. An

evaluator survey asked the supervisor to rate an interpreter's communication of each interpretive message (theme, safety, and mission) in three categories: delivery, media, and interpretive principles (Tilden, 1977). A five point scale was used (5 high, 1 low). (See Figure 2.)

Experimental Design.

Six intern interpreters with similar backgrounds were chosen for the study group. The experimental treatment was the evaluation conference. Because National Park Service policy requires that each interpreter be evaluated, a traditional control group could not be used. This study used a reflexive control, comparing the group of interpreters over two or more points in time: before and after being exposed to evaluation conferences (Rossi and Freeman, 1989). The design of the study was as follows:

	Time 1	Treatment	Time 2
Group I	0	X	0
Control			Group 1 at Time 1

The study took place from June 17-August 25. It was divided into five study periods (roughly one week in length each). Interpreters were evaluated each period according to the following evaluation cycle (Also see Figure 3).
1) Interpreters presented programs.
2) Interpreters continued to present programs and administered surveys to visitors after each program.
3) Supervisors evaluated programs, and completed evaluator surveys.
4) Researcher analyzed the data and presented an evaluation report to interpretive supervisors.
5). Interpretive supervisors held evaluation conferences. (Supervisors shared the results of their evaluation and study results with each interpreter. Supervisors were instructed to use research results in their evaluation conferences in such a way as not to reveal the nature of the study to interpreters.)
6) Interpreters revised their programs before the next period.

Figure 2:
Evaluator Survey (excerpt)

Please rate the interpreter on each objective (theme, safety, and mission) in three categories: Delivery, Media, Interpretive Skills. Score items #2-#4 on a range of 1 to 5, with a score of 5 as excellent. Please comment on each item.

	Changing Climates/ Ecosystems Theme Objective	NPS Objective	Safety Objective
1. Presence/Absence	moisture/temp./ elevation/plants & animals	preservation/ enjoyment/ education	attitude/ sun protection/ lightning/ticks/ dehydration
2. Delivery (Score 1-5)__			
3. Media (Score 1-5)__			
4. Tilden/Interpretive Skills (Score 1-5)__			

Figure 3:
Evaluation Cycle at Florissant Fossil Beds

A

Training: Seasonal training includes section on interpretative objectives.

B

Research Project Introduced: Research purpose and survey administration explained to Interpreters.

D

Peer Evaluation: Dry runs of talks evaluated by supervisors and interpreters.

C

Review Talk Outlines: Supervisors review outlines for proper coverage of objectives.

1

Public Talks: Interpreters present talks.

2

Survey Administered: Talks continue.

3

Program Evaluation: Supervisors audit talks & complete Eval. Survey.

6

Interpreters revise talks before next cycle.

5

Evaluation Conference: Supervisors provide interpreters with criticism and coaching.

4

Data Analyzed: Researcher presents results to supervisors.

Figure 4:
Changes in Visitor Comprehension of Mission Interpretive Message Over Five Weeks

Visitor Comprehension of Interpretive Message (in percents)

Week of Study

▨ Poor Comprehension   ■ Good Comprehension
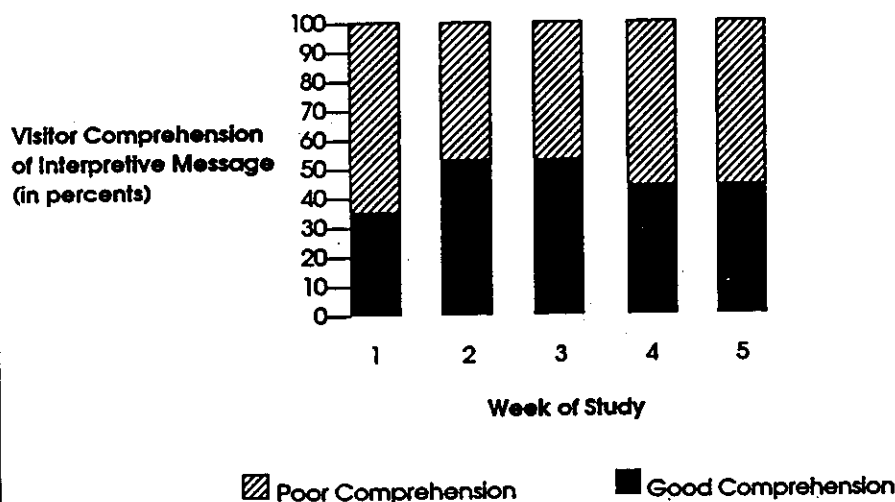
Chi-square Comparisons for Mission Message

- N = 650
- Week 1 and week 2, significant difference beyond .05 level (chi-square 6.42)
- Between combined weeks 2 and 3 and combined weeks 4 and 5, significant difference beyond .05 level (chi-square 5.59)
- No significant difference between week 1 and 4, or 1 and 5

RESULTS AND CONCLUSIONS

The results of evaluation research revealed four basic problem areas of the Florissant Fossil Beds NM Intern Program during the summer of 1990:
- Interns did not meet interpretive standards.
- Interns experienced "burn-out."
- Performance did not improve significantly after evaluation conferences.
- Little "interpretation" occurred at the talks.

The group of interns barely met minimum interpretive standards for theme and safety (51% and 52% of visitors comprehended these messages) and failed the mission standard (42% average). Also, significant decreases in interpretive performance occurred over the course of the summer season for all interpretive objectives. The decline in performance suggests that interns experienced "burn out" near the end of the season.

Interns received feedback during evaluation conferences three times during the summer. Yet the interpretive performance tool documented only one significant positive change in group performance (mission interpretive performance improved between weeks 1 and 2). (See Figure 4.)

Interpreters received instruction in interpretive techniques, and coaching at evaluation conferences. However, only 19% of respondents had an "interpretive" understanding of the theme message (See Table 2).

This set of problems is not an indictment of the interpretive program at Florissant. First, this research assessed the efforts of "first time" intern interpreters, not the professional staff. Secondly, no other park (that I know of) has been subjected to such intense scrutiny. After observing interpretive programs at many parks, I feel that Florissant's personal services program is second to none.

The evaluation tools were found to be valid and reliable in a case study setting. All survey questions were valid (Ninety percent of responses were valid. A question soliciting visitor evaluation of interpreter performance, not discussed in this paper, was found invalid). The essay question analysis tool was reliable (agreement index of .77). Supervisor assessment of indi-

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Table 2: Results of Evaluation of the Florissant Fossil Beds Natural History Talk Program.

EVALUATION QUESTION	RESULTS
1. Minimum Interpretive Standards: Did a majority of respondents comprehend at least two points of each interpretive message (theme, safety, and mission)?	No. About half of respondents comprehended theme and safety messages (51% and 52%), while only 42% comprehended the mission message.
2. Feedback Response: Were there changes in levels of interpretive performance after evaluation conferences?	Significant positive and negative changes in interpretive performance occured, with significant drops in performance towards the end of the summer.
3. Cognitive Levels of Interpreter Performances: At what cognitive level did interpreters communicate the theme message to visitors?	19% of respondents comprehended the theme message at an "interpretive" level of cognition.

vidual interpreter performance (indicated via evaluator survey) was comparable to evaluation tool results for factual questions (+.68 correlation) and for the essay question (+.79 correlation). [Pearson product-moment correlation statistic was used (Levin, 1988)].

In addition, the evaluation process was found to be practical. Data from each study period were easily processed and summarized within eight hours (except for the content analysis, which was completed after the summer season). The addition of evaluation tasks (administering surveys, completing supervisor evaluations) did not seem to interfere with the normal activities of the park.

IMPLICATIONS AND FUTURE RESEARCH NEEDS

The practical implications of this study are several. These tools make formative evaluation possible for any interpretive program. In the words of one supervisor: the study "added to the objectivity of the evaluation sessions by adding opinions other [than] those . . . of the supervisor." Two cycles of the evaluation process near the beginning of each summer season should be particularly useful in getting seasonal staff "up to speed."

In addition, these tools and processes allow supervisors to document the achievements of interpretive programs in quantitative terms. These "numbers" could be used to justify continued or increased allocation of resources to interpretive services.

Managers should be interested in knowing what percentage of visitors attending interpretive programs came away with an understanding of management concerns such as visitor safety or resource protection.

The idea of measuring interpretation through use of cognitive levels should be investigated further. Bloom's Taxonomy provided a start. Future studies should review the education literature for other models. In addition, the communication literature should be reviewed to investigate the relationship between the interpreter's cognitive level of communication and the visitor's level of cognition. Finally, it is hoped that researchers and park managers will build on this study by trying some of these quantitative evaluation tools and processes. For interpretation to emerge as a true discipline in the years ahead and to garner increased management support, quantitative evaluation methods will need to become "standard equipment" for every park interpretive program.

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* FYI-Factoid *

The most densely populated territory on earth is Macau. This small island off China has over 63,000 residents per square mile. The least populated area is Antartica with a maximum allowed population of 2000.

V. BIBLIOGRAPHY

The bibliography provides you with additional resources from which to obtain information.

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Evaluation assistance can also be obtained from **"Evaluating Interpretive Programs"**, a 30 minute videotape made in 1991 by the National Park Service and Cooperative Parks Studies Unit, University of Idaho and National Park Foundation. The tape can be ordered for $49.50 from Training Videotapes & Publications, National Park Foundation, 1101 17th Street, NW, Suite 1102, Washington, D.C., 20036, 202-785-4500.

VI.   CONSULTANTS

There are private consultants who can perform evaluations of
your Interpretive and Outreach programs and products if desired.
Assistance in locating them may be obtained from:

National Association for Interpretation
Post Office Box 1892
Fort Collins, Colorado   80522
303-491-6436

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Engineering Pamphlet
No. 1130-2-434   30 Mar 1994

EVALUATION PROCEDURES
Volume 3
Interpretive Services and Outreach Program (ISOP)

1. This change 1 to EP 1130-2-434, Volume 3, Sept 93:

    a. Incorporates changes made to page 2, A.e., Methodology.

2. Substitute the attached pages as shown below:

Remove Page   Insert page

 1 and 2   1 and 2

3. File this change sheet in front of the publication for
reference purposes.

FOR THE COMMANDER:

WILLIAM D. BROWN
Colonel, Corps of Engineers
Chief of Staff

I. THE BASICS

A. METHODOLOGY

The goals of the Interpretive Services and Outreach Program according to ER 1130-2-428, are to:

a. Achieve management objectives with interpretive techniques.
b. Provide environmental education to foster voluntary stewardship of natural, cultural, and created resources.
c. Incorporate the Corps Civil Works and military missions and accomplishments into interpretive programming.
d. Improve visitor and employee safety using interpretive techniques.
e. Use outreach to accomplish ISOP goals, including interpreting Corps missions, promoting stewardship, saving lives, and solving management problems. As part of the interpretive process, encourage interest in math and science, including career interest.
f. Enhance the visitors' experience and enjoyment by anticipating their needs and providing interpretive resources to meet those needs.

Let's assume that you have determined your interpretive objectives based upon these goals, perfected a questioning strategy, acquired all necessary audiovisual props, and believe you have the perfect program. Do you? The following information is presented to assist you in understanding how and what to evaluate in your Interpretive and Outreach Program, either through self-evaluation or having another individual(s) critique your program or service. The following information is derived from the Prospect course, "Interpretive Services", taught by William J. Lewis and John A. Veverka.

In order to maintain high quality interpretation, it is essential to be able to critically appraise the effectiveness of the interpretive programs/services being offered to the project visitors. The crucial questions to be asked and answered are (from Veverka, 1977):

a. Are the objectives of the total program being met?
b. Are the objectives of the interpretive services being met?
c. Are the interpreters fulfilling the objectives of the job required of them?
d. Are the visitors satisfied with their experience?

Often, only interpretive services are evaluated as a means to determine the effectiveness of an entire interpretive program. It is beneficial, however, to also evaluate the total program and the interpreters themselves. To do this, objectives for the overall program, services, and interpreters must be identified and evaluated with respect to:

a. The visitors' psychological experience or overt behavior.
b. The numbers of visitors contacted each year.

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