

Selinda Research Associates

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Trail of Time at Grand Canyon National Park Formative Evaluation Plan

Description of what will be evaluated:

The *Trail of Time (ToT)* exhibition has been divided into four segments, from east to west:

- a. *Into the Future Trail* (200 meters) – from the amphitheatre area east of Yavapai Observation Station to Yavapai Observation Station
- b. *Time Accelerator* (400 meters) from Yavapai Observation Station west to Grandeur Point
- c. *Main Trail of Time* (1840 meters) from Grandeur Point west to Verkamps
- d. *Early Earth Trail* (2750 meters) from Verkamps west to Maricopa Point

The *Main Trail of Time* will be developed first, followed by the *Time Accelerator*. The remaining two segments will be developed after the first two are completed. Evaluation will be conducted on the first two trail segments only, and will focus on the following components:

1. meter and ten-meter markings
2. first walking guide (2007)
3. temporary signage
4. second walking guide (2008)
5. small waysides
6. large waysides
7. portals
8. interpretive brochure

Although the evaluations will not focus on the *Into the Future Trail* or the *Early Earth Trail*, it is anticipated that findings from the evaluations will inform the development of these segments as well.

Selinda Research Associates will not conduct evaluations on: the electronic media, the *Trail of Time* website, personal interpretation, the *Trail of Time* book, other publications, and marketing materials.

Type of Evaluation and Research Questions

A first phase formative evaluation study was completed in 2004. This study assessed visitor responses to an initial prototype of the trail with some accompanying interpretation. The final report from this study can be found on the *Trail of Time* website: <http://epswww.unm.edu/TrailofTime/>

The research question for this second-phase formative evaluation will be:

How can various components of the Main Trail of Time and the Time Accelerator be improved in order to maximize the potential for visitors to achieve the educational and experiential goals of the project?

Roles and Responsibilities of Evaluation Team

The **evaluation** team will consist of Deborah Perry, Eric Gyllenhaal, Marcella Wells, and Karl Karlstrom, with input from the project work team.

Additional teams with whom the evaluation team will interface with and gather input from include: **administration** team (Karl Karlstrom), **design** team (Andy Merriell), **research** team (Steve Semken), and **technology** team (Tim Creed). The *ToT project work* team is comprised of the leaders of each of these teams, plus additional personnel, including a representative from the National Park Service, an active participant in and contributor to the *Trail of Time* project.

As project manager **Deborah Perry** will oversee the evaluation project, the development of the evaluation plans, and OMB approvals; manage the timelines and budgets; and ensure the evaluations are of high quality.

As lead researcher, **Eric Gyllenhaal** will guide the evaluation process, including developing the evaluation plans, conducting literature reviews, and collecting and analyzing data. He will also be responsible for the write up and sharing of the evaluation results. Additional SRA researchers may be brought in as appropriate for data collection and analysis.

Karl Karlstrom will serve as client, participating in all evaluation team meetings, the development of the evaluation plans and OMB approval. He will review evaluation findings, and give appropriate feedback and input in a timely fashion. He will also be responsible for ensuring the construction of selected prototypes for testing, and will serve as a liaison between the evaluation team and Grand Canyon National Park.

Marcella Wells will serve as liaison between the evaluation project and the administration team. In addition to participating in all evaluation meetings, she will distribute evaluation meeting agendas, and write and distribute evaluation meeting summaries.

Communications & Relationship

Selinda Research Associates is committed to a collaborative relationship where expertise, information, and concerns are shared, and decisions jointly made. Depending on the activity, the major responsibility for a particular task may rest with the client, project manager, lead researcher, or liaison.

In order to maintain open communication, the evaluation team will meet every other Thursday, especially during the planning phase. In addition, all members of the evaluation team will participate in the regularly scheduled project work team phone meetings at 3/4/5 p.m. mountain/central/eastern time on alternate Thursdays.

Communications from the administration and project work teams will flow to the project manager (Deborah) who will then distribute to other members of the evaluation team as appropriate.

Methodology

As in the first phase formative evaluation, this formative evaluation study will use a naturalistic methodology. Naturalistic inquiry is a rigorous and disciplined approach to collecting, analyzing, and reporting data gathered in natural (as opposed to laboratory) settings. Naturalistic methodologies emphasize collecting data using a mix of methods, primarily qualitative, and triangulating findings. Naturalistic evaluation reports tend to be narrative in format. This enables the researchers to capture and report the findings in visitors' own words.

Design of the Study

This formative evaluation will begin with the collaborative development of a detailed evaluation plan outlining the research question, the design of the study, and a description of methods and methodology.

This formative evaluation study will consist of a series of up to 10-12 mini-studies. Immediately following data collection and analysis, each mini-study will culminate with the writing up of an **evaluation brief**. These briefs will be distributed to all members of the *ToT* project work team, and posted on the project website so that they may be used quickly to aid the design/development process. Depending on the mini-study, some data may come primarily from a literature review, off-site testing, or on-site testing as described below under *Data Collection Methods*.

Data Collection Methods

Data collection will consist of:

- a. literature reviews of relevant research and existing evaluation studies
- b. off-site (in Chicago) testing of draft and prototype components
- c. on-site (at GCNP) testing of draft and prototype components

Most mini-studies will include a combination of at least two types of data collection methods

Literature review. This method will consist of looking at existing research and evaluation studies and summarizing the major findings that will contribute to design/development. Only a few issues will be dealt with exclusively through the literature, for example when this will produce findings quickly, and also when we are looking for more generalizable information that will inform a variety of components.

Off-site prototype testing. Off-site testing will consist primarily of a combination of critical review and some testing with selected respondents. During critical reviews, the evaluators will use their background in the informal learning research and experience in the design of informal learning materials to review prototype materials and make judgments about the likelihood of their effectiveness. Recommendations for improvement will be suggested.

Whenever possible, critical reviews will be combined with testing with selected respondents. In these situations, respondents will be shown prototypes of materials, and will then participate in a depth interview with the evaluator. When appropriate, some testing may be conducted in local museums or other informal educational settings.

On-site prototype testing. On-site testing will consist of testing prototypes on location at the rim. Cost considerations will limit the number of on-site test situations to no more than three to four. In order to maximize cost/benefit, whenever possible testing of more than one type of prototype will take place during each on-site test.

On-site testing will consist of setting up prototype materials, and conducting unobtrusive and participant observations and depth interviews with respondents. Unobtrusive observations (i.e. those done at a distance from the respondent) will be followed by a depth interview whenever possible. Participant observations will take place when the evaluator joins a visitor group as they use prototype materials.

Topical Framework

A topical framework is an outline of all topics or issues that will be explored as part of an evaluation study. Usually the topical framework is developed at the beginning of a project. In this project however, because of the many components and the complexity of the project, issues to be explored will be identified on an on-going basis. The client will have the final decision about which topics to explore, but any member of the evaluation and project work teams is encouraged to make suggestions.

Data Collection Process

For the testing of each of the eight components described above, a standardized process will be used that consists of roughly the following steps:

1. initial design/development
2. review by project team
3. re-design as necessary
4. off-site testing of prototype
5. re-design as necessary
6. NPS review and approval
7. on-site testing of prototype
8. final design
9. fabrication
10. installation

Description of Respondents

Respondents for the off-site testing will include people from within the evaluators' circles of family, friends, and acquaintances. All respondents will be purposively selected. Purposive selection consists of deliberately selecting respondents who will have a different perspective from previous respondents. If possible, casual visitors to museums and other informal learning environments will also be selected.

Most respondents for the on-site testing will be members of small intergenerational social groups or individual adult visitors. While we won't deliberately seek them out, we anticipate that some respondents will be members of tour groups visiting the Park. Similarly, the formative evaluation may include students (middle school through college) visiting as part of school field trips, and their teachers.

Data Analysis Methods

As in the first phase formative evaluation, we will use a modified inductive constant comparison data analysis strategy. Constant comparison is a process whereby each unit of data is systematically compared with each previous unit of data to ensure a range of perspectives are captured, as well as to resolve any discrepancies.

Final Products

There will be three primary products for this formative study: a) a formative evaluation plan; (b) a series of up to 10-12 evaluation briefs; and (c) a final compilation of the study.

The formative **evaluation plan** (this document) will serve as the blue print for the study. It will be developed during the planning phase, and will include a detailed description of the research question, roles and relationships, methods and methodology, description of respondents, and other information pertinent to the conducting of the research.

The 10-12 **evaluation briefs** will each be either a summary of what we know from the literature about a topic, or the results from the off- or on-site review and testing of prototypes. The purpose of the briefs will be to provide quick summaries of important information in a timely fashion. Two criteria will guide the development of the briefs: (a) quick – readily available, relevant, and useful information for the design team; and (b) brief – approximately two pages long. A first draft of all evaluation briefs will be circulated among the project team for input before being finalized.

The **final compilation** of the briefs will be an information package comprised of a short introduction giving an overview of the evaluation process and timeline, followed by the entire series of briefs, and perhaps including a few additional appendixes as appropriate. This final compilation will be made available as a single document.

Timeline

Formative evaluation will take place from approximately December 2006 through September 2008 in conjunction with the larger project timeline, although the specific dates may change depending on the needs of the project. The timeline will continue to evolve as materials are identified for prototyping. The timeline for the evaluation is recorded in two documents: *ToT Master Project Timeline* (maintained by Marcella Wells) and *Evaluation Schedule* (maintained by Deborah Perry). These two documents will track the progress of the development, design, evaluation, fabrication, and installation of all the various components of the project, and the various teams' responsibilities. Both will be updated regularly.

Operating Budget

Approximately 95 people days are allocated to the formative evaluation: approximately 25 people days for project management, planning, and meetings; approximately 45 for data collection and analysis; and approximately 25 for writing evaluation briefs. Travel to/from the advisory meetings will be covered by UNM.

Ethical Treatment of Respondents

SRA and the *TOT* project team, the National Park Service, and NSF are committed to the ethical treatment of respondents, and will adhere to standard professional practices for conducting research in informal settings. All respondents will be guaranteed anonymity and will give informed consent. In addition, a sign will be posted during all on-site evaluation informing visitors that data collection is taking place. Furthermore, we will ensure that the disruption of visitors' experiences is kept to a minimum.

After discussions with the National Park Service's Social Science Program we have received official notification that OMB approval will not be required for this study. Both of the lead researchers in this study have completed and are certified in the National Institutes of Health *Human Participant Protections Education for Research Teams*.

Logistics

SRA, the *ToT* project team, and National Park Service staff will work together on logistics including:

- Access to GCNP and identification vests/badges as necessary
- Posting of signs informing visitors of the evaluation
- Providing a quiet office-like space close to the *Trail* for evaluators to type up debrief notes (with flat surface, chairs, and electrical outlet).
- Housing for evaluators within the Park during on-site data collection.

Karl and Marcella will work with National Park Service staff to acquire appropriate tokens of appreciation for respondents as necessary.

Dissemination of Reports

The entire *TOT* team is committed to the active dissemination of findings from this study. The formative evaluation plan, all the evaluation briefs, and the final compilation report will be shared with the *ToT* project team, and will be posted on the *Trail of Time* website. In addition, the final compilation report will be posted on the SRA website. The National Park Service may also decide to post the report on its website.

Project Closure

Selinda Research Associates is committed to open communication and reflective practice. A project closure meeting between SRA and the administration team will be held at the conclusion of the formative evaluation.