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**AN UNOBTRUSIVE OBSERVATION STUDY OF VISITOR
INTERACTION WITH EXHIBITS AND PARK STAFF
IN SAGUARO NATIONAL PARK**

by

Liudyte Novickis

**A Thesis Submitted to the Faculty of the
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**In Partial Fulfillment of the Requirements
For the Degree of**

**MASTER OF SCIENCE
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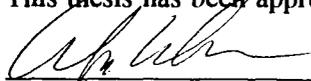
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ABSTRACT

The behavior of visitors in a museum is one way to evaluate the effective exhibits and information services. Unobtrusive observation of visitors both in and around a visitor center and museum produces data which indicate visitor preferences. Timing visitors to see how long they stay at a particular spot contributes to the planner's knowledge of museum patrons.

Studies of this sort are quite common in private zoos, museums, and aquariums nationwide. The National Park Service, however, has done few unobtrusive observation studies, and little to evaluate exhibit effectiveness.

In this study, visitors to the Saguaro National Park, East Unit, Visitor Center in Tucson, Arizona, were unobtrusively observed to determine their interests. A population of 100 visitors was observed outside the visitor center, and a population of 100 visitors was observed inside. Visitor responses to 23 stopping points inside the visitor center were observed.

INTRODUCTION

Evaluation should also occur on a routine basis after the program has been developed ... policies and goals of the agency may change, the resource may change, and the visitor may change. Any one of these changes might cause a given interpretive program to lose its effectiveness or to become inappropriate. -Roggenbuck and Propst 1981:15.

Millions of people visit National Park Service (NPS) visitor centers and museums each year. Park managers view visitor centers and the interpretive activities which take place therein as crucial to promoting park policies (Nielsen and Buchanan 1986). However, lack of personnel, funding, and time, as well as employee turnover have in some cases led to generic design of exhibits, mediocrity, and obsolescence (Mack and Thompson 1990). Ongoing monitoring of visitor behavior, evaluation, and redesigning of exhibits rarely occurs.

Saguaro National Park (SNP) in Tucson, Arizona, abuts a sprawling urban area (Figure 1). There is a visitor center in each of the two park districts. The visitor information center in the Rincon Mountain District, on the east side of Tucson, received 79,414 visitors in fiscal year 1993 (October 1992 through September 1993). In fiscal year 1994, 73,702 people visited the center. As of March 1995, there was a 16.7%

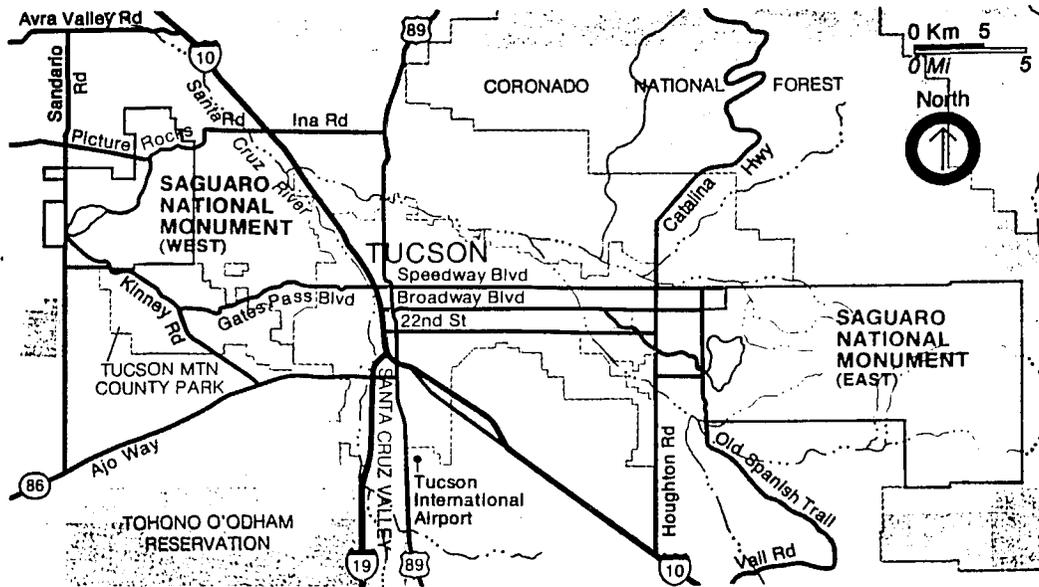


Figure 1: Region Map of Saguaro National Park

cumulative increase in visitation over the previous year.

An exhibit room, book sales area, information desk, and auditorium comprise the visitor center. Exhibits include information on desert plant and animal adaptations, North American deserts, and human use of the desert. Outside are bulletin boards, the Cactus Garden self-guided nature trail, and conveniences such as a public telephone and restrooms.

The exhibit room within the visitor center contains displays that are over thirty years old. Most of the exhibits display the same text style and font, and employ the same illustrative techniques as do other NPS exhibits across the country. The visitor information desk is similar in design to those in other national parks. A large picture window, facing a saguaro forest, is a prominent feature of the building.

The visitor center is staffed by uniformed park rangers as well as Volunteers-in-Parks personnel and Southwest Parks and Monuments Association (SPMA) clerks. It is open 8:00 a.m. to 5:00 p.m. daily except on Christmas Day. The visitor center and grounds are handicap accessible.

The Research Problem

Many national park visitor centers and interpretive displays were constructed in the 1950s and 1960s during the NPS's expansion program called Mission '66. As a result, exhibits from that era are very similar in style nation-wide. Mack and Thompson

(1990) stated that although "exhibit consistency from location to location, within and between parks, may have significant merit for visitor identification and use, it can also lead to decline in the unique flavor of exhibits in parks".

The main NPS interpretive planning office is in Harper's Ferry, West Virginia, far from the western national parks. Planners from this office seldom observe field level operations on a regular basis (White 1993). Although Harper's Ferry interpretive specialists work with field personnel in designing exhibits, field rangers usually transfer periodically, leaving little continuity in knowledge of exhibit evaluation, visitor behavior, and visitor interests.

Formal and informal studies on visitor preferences and behavior, and exhibit effectiveness in private zoos, aquariums, art and natural history museums abound. Surveys, questionnaires, suggestion boxes, time-lapse photography, and observation are all evaluation methods used to test exhibits, programs, and visitor responses (Wagar 1976). Private institutions use these and other tests to gauge visitor preferences, and to update interpretive exhibits.

NPS staff and social scientists also conduct research in the parks, albeit sporadically. Surveys in the parks often focus on a particular user group and its preferences. Park staff have to rely on visitor suggestion boxes and letters to gauge preferences on a month-by-month basis. As Lime (1988) said: "Unfortunately, comments often gathered from voluntary guest or registration books, suggestion boxes, and letters, as well as comments made to employees, do not represent the total population of visitors,

nor may casual, day-to-day observations made by administrators in the facility."

There is a dearth of published information on visitor behavior within NPS visitor centers. No published visitor behavior, museum, or exhibit evaluation studies pertaining to SNP have been found.

Research Objectives

How strange it is that in published accounts visitors always seem to be talking about the exhibits - never the weather, their love life, or even the location of the tea bar. -Lawrence 1991.

The purpose of this study was to systematically observe and describe visitors while they were in, and near the visitor center. The study used an ethnographic, descriptive methodology. An effort was made to note all types of comments, not only those to do with the subjects of the exhibits.

The primary objectives of the research were:

1. To describe overall visitor behavior in SNP visitor center and vicinity in terms of time spent at exhibits and other major features of the center and surrounding area.
2. To provide insights for NPS concerning visitor behavior and

the effectiveness of different exhibits.

Justification

The choice of this topic for my research was based on the following considerations:

1. Sociological data on visitor use at Saguaro NP is minimal. Basic visitation figures, information from backcountry use permits, and internal use documents such as a recreational use survey (Shand and Underhill 1985) exist.
2. According to the park's General Management Plan (1988), "Information and interpretation are inadequate in both districts, and there is little coordination concerning themes or approaches. In the Rincon Mountain District media is outdated and the central theme is still the 'prime cactus forest' although the prime forest no longer exists and many of the individual cacti there are scattered and aged... The interior of the visitor center will be redesigned for better circulation. New media will be provided to focus awareness on the district's existing resources."

Since this statement, a new visitor center was built in the

park's western unit. According to park managers, future funding will likely be used to upgrade the eastern unit's visitor center. This study will provide needed information about the visitors and their preferences.

3. Few museum evaluation studies have been conducted in NPS units although many have been done at other public and private museums. Given the similarity of NPS visitor centers nationwide, this study may provide insights for park managers elsewhere.

Background Information: Saguaro National Park

History

In 1933, President Herbert Hoover established Saguaro National Monument. The original park contained only the Rincon Mountain District, east of Tucson. The President declared the area to be preserved for the land itself as well as various cacti upon it, including the saguaro cactus.

In 1961, President John F. Kennedy added the non-contiguous Tucson Mountain District to the park.

In 1994, Congress changed the Monument's status to a National Park, and added more acreage to the western district. Land had been added to the eastern district in 1991. Much of the Rincon Mountain Unit, on the east side of Tucson, is classified wilderness

area. The Rincon Mountains remain the only major mountain range in Arizona without a road to the top.

The Setting

The city of Tucson is surrounded by a ring of mountains managed by the Forest Service, the Bureau of Land Management, and the National Park Service. Saguaro National Park was originally over ten miles from Tucson city limits. The ever-increasing population of Tucson and its suburbs have pushed development closer to both units of the park. Approximately 5,000 acres of Sonoran desert are expected to be converted into a residential, commercial, resort and golf development (the Rocking K) near the east side of the Rincon Mountains within the next 10 to 15 years.

The park's total land area is 91,327 acres. This includes 84,392 that are owned by the NPS, 2,639 which are state owned, 856 by Pima County, and 3,430 which are under private ownership (NPS 1995). These numbers are expected to change as further land acquisition occurs. The Rincon Mountain District has 67,293 acres which lie within easy driving or bicycling distance from Tucson. Much of the north and east side of the Rincon Mountain Unit shares boundaries with the U.S. Forest Service.

LITERATURE REVIEW

General Overview

Very little research in national parks has been done, using unobtrusive observations and techniques to study visitor behavior. The literature review is largely drawn from other museum, aquarium, and zoo studies which have been conducted with visitor behavior in mind.

Although the word "museum" may have different meanings for different people, in this study "museum" refers to publicly supported educational institutions such as science centers, art museums, historical homes, nature centers, botanical gardens, or zoos.

According to Naisbitt and Aburdene (1990), "museum-going is rapidly becoming the single most popular out-of-home activity in America."

DeBorhegyi and Hanson (1968) described three categories of museum visitor studies. These categories involve research methods both obtrusive and unobtrusive in nature. The first category includes studies of visitor characteristics such as age, income, and education.

The second type includes visitor behavior such as the traffic patterns one follows, the amount of time spent in front of each exhibit or painting, etc. Experiments have been conducted with arrows, signs, guide books, and exits to see if they alter visitor patterns.

The third type of study attempts to evaluate visitors' learning experiences.

For example, visitors might be asked questions about their experiences as they exit the museum.

The earliest visitor and museum studies were conducted by Robinson (1928) and Melton (1935). Robinson unobtrusively studied visitors to art museums to track the total time spent in picture collections, the rooms entered, the number of pictures in each room which a visitor actually looked at, and the time spent with each picture. He was the first museum researcher to describe exhibit popularity based on the amount of time spent at an exhibit.

Robinson also elaborated on Benjamin Gilman's (1916) concept of "museum fatigue". He described its characteristics as "aching muscles, tired neck and eyes, and the vague but insistent desire to escape from too many pictures or too much sculpture" (1928:31). He, unlike Gilman, believed museum fatigue to be caused by psychological factors, as well as physical exhaustion (Falk and Dierking, 1992).

Melton also studied visitors to art museums by observing and timing them. He asserted that unobtrusively observing and timing visitors is the only research method with "inherent validity" (1935:7). He claimed that self-reported interests of visitors were unreliable.

Melton was the first person to record the tendency of museum visitors to turn to the right when entering a gallery. He found that 75 percent of the visitors did this. Researchers since then have confirmed the finding that most United States citizens will indeed turn to the right, regardless of museum exhibitry or design (Falk and Dierking

1992). This is especially true if the exhibits do not have a particular starting point, or if there are several possible entryways.

Melton also found that visitors will exit through the first door they see rather than complete their viewing. He termed this "exit attraction". People will view exhibits close to an entrance more than those in the interior of the museum or near the exit (Melton 1936).

Time, as a measure of visitor interest and attention, has been used by many researchers in many different studies (Falk 1982, Menninger 1990). Falk described time as a means to evaluate exhibit effectiveness and to assess visitor behavior. The length of time spent at informal, voluntarily-visited museums and zoos is considered an important measure of the holding power of the attraction (Falk 1982, Lessow 1990, Rosenfeld 1980). Menninger noted that the time visitors spend engaged in an activity is a key measure of visitor behavior and exhibit effectiveness in museum settings .

Based on studies conducted at natural history museums (Falk et al. 1985), museums (Melton 1935), a science center (Diamond 1979) and an aquarium (Taylor 1986), Falk and Dierking (1992) proposed three generalizations about museum visitors. Although visitors display great variation in visiting museums, there are three "typical" patterns, one for first-time and occasional visitors, one for frequent visitors, and one for visitors in organized groups. The generalizations describe the characteristics and behavior of the visitors in each of these three groups. For example, first-time visitors will take a few moments to acclimate themselves to the museum surrounding whereas repeat

visitors may head directly for their favorite exhibit.

Unobtrusive research methods will not answer all questions about visitor behavior. However, such methods are least likely to alter the visitor's behavior and activities (Altmann 1974, Babbie 1989, Loomis 1987, Webb, et al. 1970). Unobtrusive observation can be used to obtain general sociodemographics such as age, sex, and race; social group characteristics such as group size and composition; and activities such as depreciative behavior (Mullins et al. 1984).

Observation methods used in this study are similar to those used by Diamond (1980), Lessow (1990), Lime (1988), Melton (1935), and Rosenfield (1980). These studies involved observing people in museums, zoos, and visitor centers, all in non-classroom educational settings. Most of them also used questionnaires, surveys, or visitor comments to complement the observations.

Unobtrusive observation is especially appropriate in public places of all sorts, including national parks. It has been extensively used in the fields of cultural anthropology and sociology (Webb et al. 1966, and Preiser 1973), recreational settings (Campbell 1970, and Serrell 1980), and in interpretive settings, (Lime 1988, Nelson 1980, Wenderoth and Machlis 1982, and Trotter 1989).

Related SNP Studies

One previous study concerned the visitors' use of facilities at SNP (Shand and

Underhill 1985). Visitors were surveyed along with neighboring landowners, and organized user groups in order to determine what visitors do and where the visitors come from. Much of the study focused on visitor preferences and satisfactions with their recreational activities in the park.

The researchers determined that less than half of SNP visitors resided in the Tucson area. For the park as a whole, approximately 60% arrived from out-of-state. In the Rincon Mountain District, over 73% of the visitors were retirees. Locals comprised 41% of the visitors in the spring, and 55% of the fall visitors. More than half (51%) of the visitors arrived in pairs.

CONCEPTUAL FRAMEWORK

Falk and Dierking (1992) proposed a framework to describe a museum visitor. They called the framework the Interactive Experience Model. The framework incorporated museum visitor literature as well as relevant research from psychology, anthropology, and sociology. The authors conceptualized the museum visit as an interplay among three contexts: (1) the personal, (2) the social, and (3) the physical. The result of this interplay was seen as being more than the sum of its parts and was labelled the "museum gestalt".

The museum gestalt model was adapted to the national park setting and used to conceptualize the average park visitor for purposes of this study. Park visitors

reach a visitor center with a variety of forces at work on their minds and bodies. These forces range from the people they are with to the local road conditions. They will be affected by several factors before even reaching the park, for example, the cleanliness of highway rest stops en route. Hence, their overall park experience will rely on many factors, not all to do directly with the national park.

There are at least three variables or contexts which affect the park visitor. The first variable is the "personal". Why do people visit national parks? How do they perceive the park once they arrive? What sort of recreational activities are they seeking? Questionnaires/surveys conducted in national parks (Wenderoth and Machlis 1982, Shand and Underhill 1985) partially address this question.

Maslow's hierarchy of needs (Maslow 1954) also applies to a visitor's personal state of mind. Food, water and shelter are the base of the pyramid, and individual fulfillment is at the peak. The museum may be viewed as a pyramid because people view the gift shops, restaurants, bathrooms, and other conveniences or basic needs as part of the museum experience. The ease of parking and walking distance to the museum, as well as the convenience and cleanliness of the bathrooms, and the friendliness of the staff may have important effects on the rest of the museum experience. Once the basic issues or needs are addressed, visitors may focus attention on the content and detail of exhibits and displays.

The second variable is the "social". Who do people go with when they visit the national parks? Shand and Underhill (1985), Underhill et al. (1986) and others have

researched group compositions in national parks. The majority of visitors to national parks come in pairs or small groups. Interactions among members of varied groups have also been studied in science/natural history museums (Diamond 1979, McManus 1989, Taylor 1986).

Most people visit museums in a group, and the composition of the group affects the individual's behavior. People who visit alone come into contact with other visitors or with staff. Crowding and interactions with park staff, volunteers, and park visitors affect people's museum experiences in either positive or negative ways.

The third variable is the "physical". Physical factors such as the sights, sounds, and smells of the visitor center will affect people. For example, dirty bathrooms or a wet carpet may remain in a person's memory longer than a particular exhibit s/he viewed. A lack of a bench when a person is weary may drive the person out of the museum.

Zube, Crystal, and Palmer (1976) studied twelve visitor centers nationwide to evaluate the perceived qualities of each. They evaluated the design of each building and the visitors' perceptions about audio-visual programs, levels of crowding, and the quality of the exhibits.

Variations between art and science museums, zoos and national park visitor centers all impact the visitor's experience as well. The interplay of the three variables rather than a single factor results in the overall visitor experience.

METHODOLOGY

We suggest a "natural history" of the various visitor populations is the first step to understanding their role in parks and similar settings. Not surprisingly, the anthropologists provide useful research strategies. Participant observation, time-budget studies, ethnographic surveys, and content analysis of written materials are all appropriate research techniques and should provide the descriptive evidence needed to understand the ecological relationships that bind park ecosystems together. -Machlis et al. 1981

Methods and Procedures

For this study, three approaches to data collection were used:

- 1) participant observation at SNP East Visitor Center,
- 2) a time-budget analysis of visitors, and
- 3) content analysis of visitor comments and questions.

Each is discussed below.

Participant Observation

Qualitative methodology includes research techniques such as participant observation, in-depth interviewing, total participation in the activity being investigated,

and field work. All of these enable the researcher to acquire first-hand knowledge about the empirical social system being studied (Filstead 1970).

Participant observation is a technique also used in ethnographic studies, and is common in the field of anthropology. Ethnography has been used in national park research such as in Wupatki National Monument (Trotter 1989). The ethnographic approach enables the researcher to view the resource (e.g. visitor center) from the visitor's perspective (Machlis 1984).

Naturalistic inquiry follows a systematic sequence. Rist (1982) recommended this sequence for science education: "gaining access to a site, adopting a role, collecting data through observation, interview and document analysis, analyzing data, seeking confirmation and presenting the narrative report."

In this case, the researcher had permission from the NPS to pose as a visitor to the area, and collect data from an inconspicuous spot. The role of the participant observer is to act unobtrusively, meaning the researcher does not interfere with the ordinary visitor's behavior.

By unobtrusively observing visitors, their actions, characteristics, and behaviors may be monitored and recorded first-hand and without direct cooperation from the visitors since they do not know they are being observed (Webb et al. 1970). Unobtrusive observation can avoid some social research problems such as response biases.

Lime (1988) stated that observation is a valid data collection technique if it is done systematically and unobtrusively. Advantages include (1) visitors are not interrupted, (2)

there is no problem of non-response or non-recall, and (3) detailed behavior can be studied.

I posed as a park visitor with a day pack, clipboard, stopwatch hidden by the clipboard, and a pen. To the casual observer, I appeared to be taking notes on different exhibits and displays. I pretended to study an exhibit while surreptitiously timing and taking notes on the visitors. Inside, I followed the visitors through the building. Luckily, for purposes of this study, the building was seldom so crowded I could not overhear visitor questions and comments. I did not have to stand close to the visitors in order to overhear a conversation, or observe the focus of their attention. Because of that, I was able to remain unobtrusive.

Outside, once I selected a subject and recorded demographic information, I sat behind a mesquite bush to the right of the building entrance, and observed the visitor's behavior. I pretended I was sitting outside writing a letter. If the subject entered a restroom, I did not follow. If the subject walked around the nature trail, I followed with my clipboard.

Time-budget Monitoring

Unobtrusively, I watched and timed one population of visitors from the time they arrived at the SNP parking lot, through their departure from the outside of the visitor center. I watched and timed a second population of visitors from the time they walked through the doors of the visitor center to the time they departed from the building. The

departure was defined as the moment when the visitor walked back out through the doors, and the door closed.

Statistical tests were later conducted to reveal visitors' preferences based on the time spent at different points of interest.

Content Analysis

Content analysis is a research method which uses a set of procedures to make valid inferences from text (Weber 1985:9). The inferences may concern the sender(s) of the message, the message itself, or the receiver of the message (Weber 1985). The methodology may be used in many cases, for example, to code open-ended questions on surveys, or to reveal the focus of individuals, groups, institutions, or society's attention. Webb et al. (1970) said that content analysis is another unobtrusive measure in which neither the sender nor the receiver of the message knows the conversation is being analyzed, thus, the comments should not be altered.

In content analysis, many words may be grouped together into fewer content categories. Smaller portions of text, such as words and phrases, may be grouped together, making information easier to access (Weber 1985:12). Comments and questions which Saguaro NP visitors made were grouped into categories of phrases with similar meanings (Webb et al. 1970). An example of such a category is "hiking" in the national park.

In this study, content analysis was used to interpret and analyze visitor comments and questions.

Sampling Strategy

Sampling Frame

Babbie (1989) defined the sampling frame to be the set of people who have a chance to be chosen as sample units. In order to narrow the scope of the study, I selected people who appeared to be over 15 years old and who were entering the park via automobile. In order to reduce variability, bicyclists, service vehicles, employees, and pedestrians were not part of the sampling frame.

Sampling Method

I was the sole observer and recorder involved in this study. I randomly selected a person out of each selected vehicle which parked in the parking lot. If a car heading into the park did not stop, a subject was chosen from the next vehicle which did stop. I selected subjects based on a random table of numbers. The paucity of vehicles at certain times dictated that the next one be selected whenever the previous observation was complete.

Two populations were studied. First, visitors to the outside of the visitor center were followed and timed. The selected visitor was unobtrusively followed until s/he

returned to the vehicle, left the visitor center grounds or entered the visitor center. The end of the visit was defined by one of these three actions.

Second, visitors to the inside of the visitor center were followed. A visitor was randomly selected as s/he walked through the doors of the visitor center. The end of the visit was when the person left through the same doors.

Subject selection did not occur during ranger slide shows/presentations. If a program began during the observation, however, the visitors were not followed into the slide show room during slide presentations, but continued to be monitored upon leaving the slide show room. The amount of time people spent in the slide show room was subtracted from the total amount of time in the visitor center. There was little interruptance due to slide shows in the overall study of 100 visitors.

Sample Size

Two hundred visitors were observed: 100 individuals outside and 100 inside. In addition, a pilot test of 30 individuals was conducted in order to refine the data gathering instrument. The pilot test results were not included in the final analysis.

Specific Procedures

Schedule

Observations occurred at random times and days of the week from March, 1994 to February 1995, not including the summer of 1994. Each observation period lasted

a maximum of two hours. An average of 5 to 6 observations occurred during each period. An effort was made to include as many times of day as possible, but not every hour between 8:00 a.m. and 5:00 p.m. was included.

Observations

If the subject talked to the observer, it was noted. Of the 200 subjects however, only two people initiated conversations with me. I did not eliminate those subjects because observations were completed before the encounter.

Observation data were recorded using information sheets created by the observer (Appendix B). Key words, first and last remarks overheard in conversations, and other notes aided my research. I noted on the observation sheets if the visitor's behavior was spontaneous, or prompted by a ranger, docent, or companion.

A stopwatch was used to determine the total time in minutes and seconds spent at different places in and around the visitor center.

Data Analysis

Coding

Observations were recorded in code on the information sheets (Appendix B). Numbers were used in order to expedite data entry.

Tabulations and Analysis

All data were entered directly from the observation sheets into a computer data file. Microsoft Excel and Word were used to create the charts and graphs. Descriptive statistics and frequency distributions were the end results.

Treatment of the Data

Information sheets (Appendix B) were analyzed to determine the following:

- (1) attraction and holding power of exhibits --
did people look at the exhibits more than 30 to 45 seconds?
- (2) the most/least popular flat-board exhibits
- (3) the type of informational materials requested/received
- (4) the nature of visitor interaction with park staff
- (5) the total amount of time spent inside and on the grounds outside.

Limitations/Assumptions

1. Limitations

-No written survey or oral interviews complemented the study.

It was unknown if people were return or first-time visitors.

-The motivation of the visitor was unknown (was s/he here for education, out of habit, etc.?).

- The visiting public is probably different from that of a larger, more remote park.
- Observed visitor behaviors might have been misinterpreted by the investigator.
- The study was limited to people who appeared to be over the age of 15, as they first arrived in the National Park by motor vehicle.

2. Assumptions

- Observed visitors were unaware of investigator's presence, and behaved as they normally would.
- Park staff and docents, although they were aware of investigator's presence, behaved as they normally would.

RESULTS AND DISCUSSION

Socio-demographic Characteristics - Inside

One hundred visitors were randomly selected as they entered the visitor center. Table 1 displays the demographic characteristics of this sample group. Data about the subjects' age, sex, race, and handicap (if visible), as well as the total number of people per group and the group composition are presented.

**Table 1: Socio-Demographic Characteristics of Visitors Who Entered SNP
East Unit Visitor Center During Sample Periods in Fall 1994 and
Winter 1995 (Total Sample Population of 100)**

Variable	Categories	No.
Sex	Female	54
	Male	46
Age	15 - 25	3
	26 - 40	40
	41 - 55	27
	56+	30
Handicap	Yes	5
	No	95
Race	Anglo	94
	Hispanic	4
	Afro	1
	Other	1
Total Number in Group	1	17
	2	55
	3	12
	4	14
	>4	2
Group Composition	Couple(s)	57
	All women	12
	All men	5
	Other	26

The majority of the visitors entering the visitor center were female (54%). It is important to note that only one subject was randomly selected out of each group, and that there appeared to be more women touring with each other or with children than men with other men. The group composition category also reflects this. Although the majority of visitors (57%) arrived as part of a couple or with other couples, all-female groups constituted 12% of the visitors. Only 5% were all-male groups.

Most people came with others, usually as a couple. As shown in Table 1, 17% arrived alone, or explored the visitor center alone, possibly leaving companions outside.

The overwhelming majority of visitors (97%) were estimated to be between the ages of 25 and 65. Five percent of the visitors had visible handicaps such as canes or crutches. Less visible disabilities, such as hearing aids, may have been inadvertently overlooked.

Ninety-four percent of the subjects appeared to be Anglo, 4% Hispanic, 1% Black, and 1% were of uncertain origin. Race was determined by facial features, clothing, and speech. Of interest is that the only time African-Americans were observed was on the Martin Luther King holiday.

Numbers of Visitors in Visitor Center

The number of visitors present when a subject entered the visitor center ranged from one to over 29 (Table 2).

Seven percent of the time, the number of visitors exceeded 29. At those times,

the building was crowded, with four or more people in the bookstore, five or more at the information desk, ten or more in the exhibit room, and ten or more milling around.

A "medium" density was recorded when 11 to 29 people were inside the visitor center. A "low" density was recorded when one to ten people were inside the building. Based on these occupancy rates, it appears that crowding is seldom an issue. Most of the time (93%) the visitor center absorbed low to medium levels of visitation, allowing room for visitors to spread out and read exhibits, talk to the rangers, volunteers, and SPMA staff, look at books, and study maps on the information desk. Only one case of unusual crowding at a particular exhibit (more than two people) was noted and recorded on the observation forms.

Table 2: Number of Visitors Inside SNP Visitor Center When Subjects Entered (Total Sample Population of 100)

<u>Number of Visitors in Visitor Center</u>	<u>No.</u>
Low (0 - 10)	54
Medium (11 - 29)	39
High (> 30)	7

Socio-demographic Characteristics - Outside

Table 3 displays the results of the demographic portion of the observation forms, for the outside population. Information about the subject's age, sex, race, and handicap (if visible) are presented. The total number of people per group as well as the group composition are presented.

Visitors in the vicinity of the visitor center were distributed about equally between males and females. Four percent had a visible handicap. Eighty-nine percent appeared to be of Anglo descent.

Most (63%) of the visitors arrived as part of a duo. Threesomes comprised 10% of the total sample. Eleven percent were with parties of four or more.

In the group composition category, 57% of the visitors came as part of a couple. Nine percent were with another woman; 7% with another man. Mixed groups comprised 27% of the visitors.

Fifty percent of the sample visitors had out-of-state license plates. This is most likely a conservative estimate of the percentage of non-resident visitors because some visitors may use rental cars with Arizona license plates.

Table 3: Socio-Demographic Characteristics of Visitors in Outside Area of SNP East
Unit Visitor Center (Total Sample Population of 100)

<u>Variable</u>	<u>Categories</u>	<u>No.</u>
<u>Sex</u>	Female	49
	Male	51
<u>Age</u>	15 - 25	3
	26 - 40	41
	41 - 55	26
	56+	30
<u>Handicap</u>	Yes	4
	No	96
<u>Race</u>	Anglo	89
	Hispanic	5
	Afro	2
	Asian	2
	Other	2
<u>Total Number in Group</u>	1	16
	2	63
	3	10
	4	8
	5	2
	8	1
<u>Group Composition</u>	Couple(s)	57
	All women	9
	All men	7
	Other	27
<u>License Plates</u>	In-state	50
	Out of State	50

Behavior of Visitors in Outside Area of SNP Visitor Center

Tables 4 and 5 summarize the behavior of people who used the outside areas of the Visitor Center. Most (75%) entered the building at some point. Sixty-five percent of those also spent time outside and looked around, read, used the conveniences, or interacted socially. The ones who did not enter the building either went back to their cars, walked into or out of the park, or took bicycles off their cars and rode into the park.

The outside facilities are used by most visitors prior to entering the Visitor Center. Thirty-five percent of the people spent negligible time outside and went directly from their cars into the building without even glancing around. People who spent less than 30 seconds outside (essentially the amount of time it took to stride from their cars through the building doors) and did not appear to look anywhere but at the Visitor Center doors, were counted as having entered the building directly. Of these, it was unknown how many were repeat visitors, or how many wanted to just ask a quick information question or report a problem.

Social interaction outside was minimal. In most cases (94%) subjects either were alone, walked straight into the visitor center, or silently walked with companions. Comments such as "I need to use the bathroom", "oh, wow", "oh, look" and no response from a companion were considered little or no social interaction. Gestures and rhetorical questions were considered little social interaction.

Of those (6%) who actively exchanged words with someone, or engaged in photography, types of social interaction observed included childcare (1%), videotaping/photography (2%), reading aloud (2%), and questioning (1%). Childcare was noted if the child required attention of some sort from a parent or guardian. Reading aloud was reported if the subject read bulletin boards or self-guided nature trail signs to a companion. An obvious discussion of plants, animals, or exhibits was categorized in the questioning category.

Table 4: Behavior of Visitors in Outside Area of SNP East Unit Visitor Center
(Total Sample Population of 100)

<u>Variable</u>	<u>Categories</u>	<u>No.</u>
<u>Social Interaction</u>	Little/None	94
	Reading Aloud	2
	Videotaping/Photography	2
	Child Care	1
	Questioning*	1
<small>*Obvious Discussion on Exhibits or Plants</small>		
<u>Entered Visitor Center Eventually</u>	Yes	75
	No	25
<u>Entered VC Directly</u>	Yes	35
	No	65

Table 5: Types of Facilities Used Outside SNP Visitor Center

(More than one may have been used by a subject)

<u>Facility Used</u>	<u>No.</u>
<u>Conveniences</u> (bathrooms, water fountain, telephone)	43
<u>Self-Guided Nature Trail</u>	33
<u>Exhibits</u>	18

Individual Exhibits - Inside

Exhibits Viewed

Visitors were observed at 18 individual exhibits plus three more stopping points (not traditional exhibits), totalling 21 "stations" (major points of interest). Table 6 provides a brief description of each of these exhibits. In addition, the bookstore and information desk were studied. These are included in Figure 2 although they are not considered exhibits per se. Figure 2 shows the 23 main stations people could visit inside the visitor center.

Time Spent

At the four most popular exhibits, visitors consistently spent more than 30 to 45 seconds reading text. Prior studies (Falk 1983, DeMouthe 1989) have shown that this is the amount of time necessary to read the text of most exhibits as opposed to simply glancing at them.

At the four least popular exhibits, visitors spent 1 to 30 seconds. Less than fifteen seconds constituted a glance or a pause in front of the exhibit.

Right Turn Factor

As has been found in previous studies (Melton 1972), more visitors turned to the right upon entering the exhibit room than to the left. Of the 52% of the visitors who

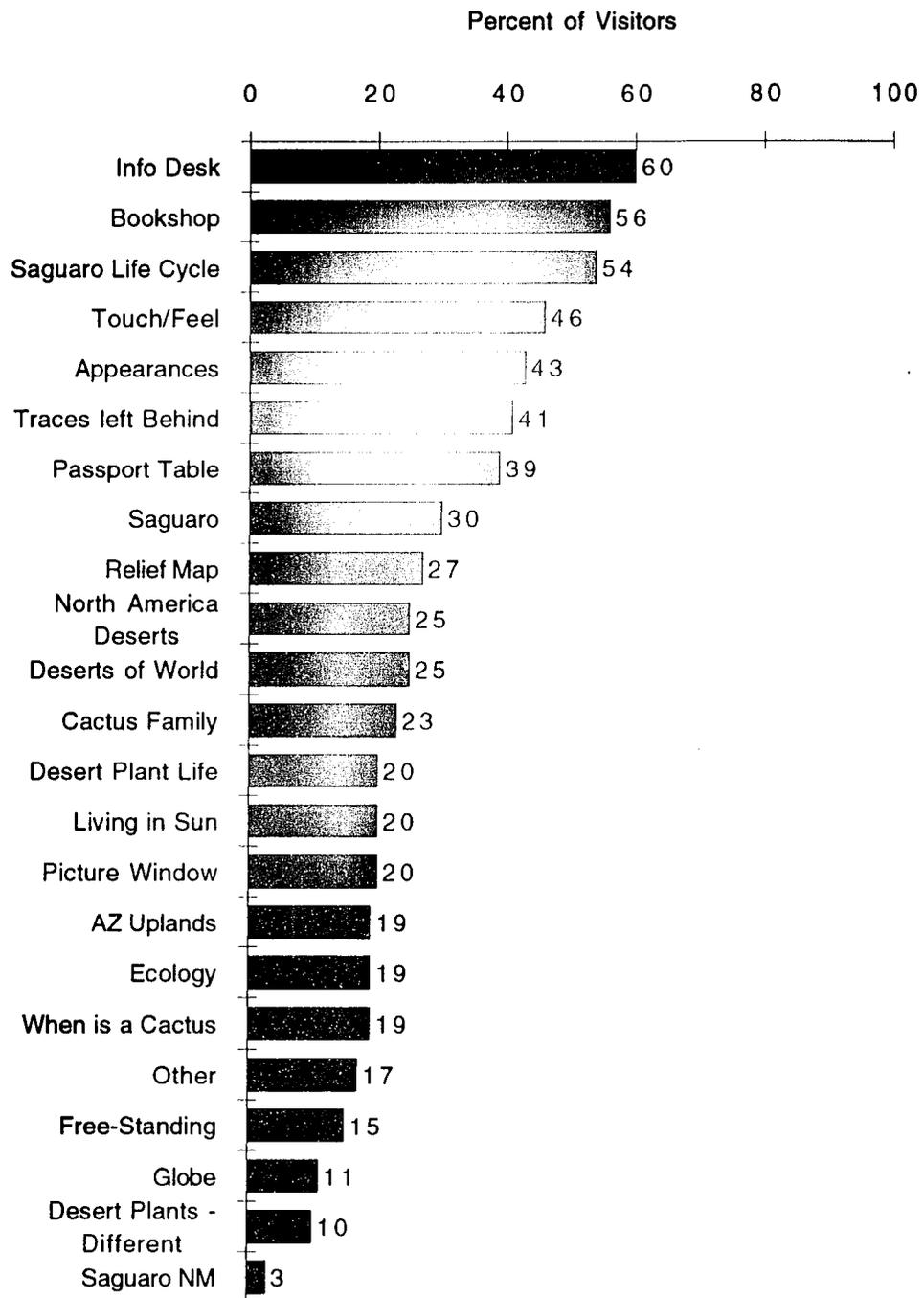


Figure 2: Percent of Visitors Who Viewed Exhibits at SNP East Unit Visitor Center

**Table 6: Description of Exhibits Viewed in SNP East Unit Visitor Center
in Fall 1994 and Winter 1995 (In order of popularity)**

<u>Exhibit</u>	<u>Description</u>
Saguaro Life Cycle	Flat-board, three panels, 30-year old saguaro in small pot behind glass
Touch/Feel	Interactive table; skulls and bones
Appearances Can Be ...	Diorama of venomous creatures
Traces Left Behind	Diorama of Native American relics
Passport Table	Display of stamps; stamp pad
Cactus Family	Flat-board
The Saguaro	Flat-board
Relief Map	Diorama; raised map
Deserts of the World	Flat-board
North America Deserts	Flat-board
Picture Window	Large window
Desert Plant Life	Flat-board
Living in the Sun	Flat-board
AZ Uplands	Flat-board
Ecology	Flat-board
When is a Cactus...	Flat-board
Other	Different options
Free-Standing Display	Three-sided display; temporary
Globe	Interactive world model
Desert Plants are Different	Flat-board
Saguaro National Monument	Flat-board

walked into the exhibit room, nearly twice as many visitors turned right as did left. This is the case even though the exhibits are designed to be viewed beginning on the left.

Most/Least Popular Exhibits

There is only one exhibit in the SNP East Unit visitor center which more than half the visiting public views (Figure 2). An average of 28% of the public visit any one exhibit. People usually visit or glance at two-thirds of the 21 exhibits.

Fifty-four percent of the visitors looked at and read the "Saguaro Life Cycle". This exhibit is immediately to the right of the main entrance. Some of its appeal may be due to the right turn factor as well as its proximity to the entrance/exit.

The Touch/Feel table was second in popularity. Forty-six percent of the visitors examined the exhibit there. The appeal is typical of hands-on exhibits, as other studies have demonstrated. The foreign language notebooks at the back of the table were not once commented on or examined.

Third came "Appearances Can Be Deceiving". Forty-three percent of the visitors spent time at this exhibit. This too may be attributed to popular appeal in that several types of poisonous creatures are displayed in the case.

The fourth most popular station was "Traces Left Behind". Forty-one percent of the public spent time there. The right-turn factor may come into play again because this is the first exhibit which may be seen to the right upon entering the exhibit room.

Of interest are the 39 visitors (39%) who stopped at a station previously

designated only as "other". This station was the "Passport to the National Parks" table. On the table was a rubber stamp and pad which people could use to mark their "passports", showing they had visited SNP. This was not initially designated a separate station on the observation sheets but rather was expected to be classed as part of the bookstore. As the study evolved, it became apparent the passport table appeared more and more often in the "other" category, and it eventually was designated as a separate, non-traditional exhibit.

The "passport" station may be popular because it is the first area seen upon entering the visitor center, or the last before leaving the center. Whichever the case, it is a highly visited station. The importance of location -- be it at a check-out stand at a supermarket or the first/last table visible in the visitor center -- must be stressed.

The least popular exhibits based on the time spent at each were "Saguaro National Monument", "Desert Plants are Different", the globe in the exhibit room, and the free-standing display just inside the main entrance.

Only 3% of the visitors looked at the Saguaro National Monument flat-board display. The exhibit is on the wall above the touch-feel table which receives so much attention. The three visitors who looked at the display glanced at it for a few seconds, and did not appear to read the text.

Ten percent of the visitors looked at "Desert Plants are Different". Eleven percent looked at the globe. An ordinary and repetitive presentation may account for the lack of interest in these two displays.

Fifteen percent of the visitors looked at the free-standing display inside the door of the visitor center. Most only looked at one side of the exhibit although it is three-sided. The exhibit is to the right of the popular passport table.

Appendix C contains information on the amount of time visitors spent at the 23 stations. People spent the most time at the most popular stations, and little time at the least popular stations.

Information Desk

Time Spent

Sixty percent of the visitors spent some time at the information desk. The largest group spent 31 to 60 seconds, but there was a broader range of time. Two percent spent more than five minutes and 2% spent less than 30 seconds. Thirty-seven percent of the people spent 1 to 2 minutes at the desk. Nineteen percent spent 31 to 60 seconds.

Often a ranger or docent came out from behind the information desk to talk about an exhibit, wildlife visible through the picture window, or something else. When such encounters with roving staff members occurred, it was thus noted on the observation sheets.

Questions Asked

As shown in Table 7, there were 44 distinct questions asked. Of the types of questions asked, 36 directly related to SNP, e.g. flora, fauna, hiking. Table 7 contains a breakdown of the other types of questions overheard at the information desk itself.

No questions were overheard at the information desk about the interpretive displays or exhibits, or the self-guided nature trail. This implies that the exhibits are either so poorly designed or so well designed that further questions are unnecessary.

Table 7: Types and Frequency of Information Given to Visitors Who Made
Inquiries at the Information Desk at SNP East Unit Visitor Center

<u>Variable</u>	<u>Type of Information</u>	<u>No.</u>
<u>Questions Asked</u>	SNP-related, general	36
	Natural History	2
	Cultural History	0
	Tucson-related, general	2
	NPS-related	2
	Other	2
<u>Information Verbally Requested</u>	Books	9
	Maps	8
	Brochures	6
<u>Type of Brochure Picked Up From Information Desk</u>	Park Glossy Map	37
	Site Bulletin	4
	NPS-related	3
	Other	4

If prompted by a roving staff member, a number of visitors inquired about the exhibits. This occurred only when the staff member stood side by side with the visitor, looking at a particular exhibit. Most often, the staff member would initiate the contact, usually beside the Touch/Feel Table, or the Saguaro Life Cycle.

Information Requested

As presented in Table 7, 57 pieces of information were requested of the rangers and staff. There were 48 brochures picked up from the information desk without further contact with the desk staff.

There were nine purchases which involved more conversation than simple greetings ("hello", "thank you"). There were eight request for maps not displayed on the information desk.

There was a high demand for the free handouts on the desk -- 48 brochures were taken from the desk. Types of complimentary brochures included site bulletins which, for example, describe local birds, a glossy park map and a park newspaper. Site bulletins and other types of information must usually be specifically requested, however, there were times when copies were already on the desk for visitors to take. The map and newspaper are located on top of the information desk.

Bookshop

For purposes of analysis, the bookshop area included the southwest corner of the visitor center, plus the two corners of the information desk which contain publications for purchase. If a visitor looked only at the publications and not at the NPS materials on the information desk, s/he was counted as being in the bookstore.

Initially, the "Passports to the National Parks" was to be considered part of the bookstore. As the study evolved, however, that station gained its own status because of its high visitation. It became the fifth most popular "exhibit".

Time Spent

Fifty-six percent of the public visited the bookstore, spending an average of 1 to 2 minutes. Eleven percent spent 2 to 5 minutes at the shop. Quite a few people spent close to five minutes, browsing. Nobody spent less than 31 seconds there.

The postcard rack was very popular. Children and adults were overheard commenting on the animals featured in the postcards, relating them to animals they themselves had seen either in real life or in the exhibit room. A pop-up children's book at the end of the information desk was also popular.

Total Time in the Visitor Center and Outside

The average amount of time a person spent in the visitor center was 11 minutes.

The time ranged from 15 seconds to 45 minutes.

The average amount of time a person spent outside the visitor center in the immediate area was 4 minutes. This ranged from 15 seconds to 30 minutes.

Common Topics of Visitor Conversations

Many questions and comments which were overheard both in and out of the Visitor Center were written down. The table (Table 8) which follows, however, is not a comprehensive list of visitor comments. Language barriers, noise levels, and inability to speed write prevented a compilation of an exhaustive list. Some visitors talked to the rangers at the desk for over 20 minutes, and those conversations were not recorded word by word. The gist of the comments was so noted. Comments by the subject's companions were also recorded. Comments in the "other" category include conversations about Golden Eagles/Age passports, social trails, soda machines, sunsets, German information, and crowds.

**Table 8: Common Topics of Visitor Conversations in SNP Visitor Center and Outside
During Fall 1994 and Winter 1995**

<u>Discussion</u>	<u>Number of Times Heard</u>
General Topic	38
Venomous Creatures	33
Other Wildlife	30
Saguaro Life History	29
Slide Show/Cost/ Maps/Closing Time/V.C. Info	27
Flora (other than saguaros)	15
Hiking Information	15
Road Information - Outside Park	8
Books/postcards	6
Campgrounds	4

CONCLUSIONS AND RECOMMENDATIONS FOR MANAGEMENT

General Conclusions

Unobtrusive observation, time analysis, and content analysis were used in this study. The quality of the exhibits at the Saguaro National Park Visitor Center, East Unit, and people's interest in them were evaluated based on time spent at the exhibits, the comments made, and the questions the visitors asked the rangers/docents.

Highlights of the Results Include:

1. Fifty-two percent of the visitors who stop at the Visitor Center enter the exhibit room.
2. The most popular stopping points inside the visitor center are the information desk and the bookshop.
3. The most popular exhibits are those closest to the main doors of the visitor center.
4. At the most popular exhibits, visitors consistently spent more than 30 - 45 seconds, reading the text.
5. People usually visit or glance at two-thirds of the 21 exhibits.
6. More than half the people who entered the exhibit room turned to the right.
7. Sixty-five percent of the visitors spent at least some time outside the Visitor Center.
8. Seventy-five percent of outside visitors eventually entered the building.

9. Exhibits did not stimulate questions concerning their content.

Recommendations for Management

Based on my personal experiences with park visitors, and this study, I recommend that four exhibits be removed and replaced. The least popular exhibit "Saguaro National Monument" is not only outdated because the "Monument" converted to a "National Park", it is also aesthetically unappealing. The colors are faded and have neither attracting nor holding power. It also has nothing to do directly with the skulls and saguaro ribs on the table below. Since the location of the exhibit is above the popular "Touch/Feel Table", a continuation of the theme of flora and fauna bones in the desert on the flatboard display may be more appropriate.

Second, "Desert Plants are Different" should be replaced. This flat-board exhibit is worn in places, and its overall dull, khaki color is unattractive. The content of the exhibit has the potential to be interesting, but the text of the existing exhibit is faded.

Third, the three-dimensional globe should be replaced because of its worn out nature. Fourth, the free-standing exhibit near the building entrance should be either removed or replaced. Few people even glanced at this exhibit, although one of the most popular stations (the "passport table") is beside it. Experimenting with temporary displays of another sort in the same location might eventually produce an educational exhibit that interests people.

Not only should the four least popular exhibits be replaced, experiments should

be conducted with colors and lighting. Brighter colors and better lights might attract more people to look at an exhibit. At the very least, by replacing the information currently posted on the free-standing cardboard exhibit, the NPS could learn more about people's interests. If 15 out of 100 people looked at the exhibit for only a few seconds during the course of my study, how many more would read the material if it were bright in color and described venomous desert creatures?

The majority of the visitors who enter the building actually read the exhibits and/or talk to a person at the information desk. Most of the questions and comments, however, have nothing to do with the exhibits themselves, implying the exhibits are either so thorough or so mundane no questions are generated. Although my data does not definitely prove either point, there are vast possibilities to experiment with the four least popular exhibits to see if visitor comments and questions about the exhibits increase.

A simple arrow or sign at the entrance to the exhibit room might divert people to go to the left within the room, thus following the proper sequence of exhibits. Replacing the old globe which is just inside the exhibit room doors to the left, might be attractive enough to visitors that they would veer to the left, hence following the proper order of the exhibits.

Exhibits with the highest priorities should be placed just inside the entrance to the visitor center. Of high priority should be concerns the management wants to relay to the public, for example, fire management. Also of high priority should be visitor interests as seen in this study, for example, saguaros and venomous creatures.

The "passport table" is an example of how popular exhibits are which are the most visible and the most strategically placed. Just as candy is placed in the check-out stands of supermarkets to grab people's attention, so should a message of management/visitor importance be placed near the Visitor Center entrance/exit.

The "passport table" is also an example of a non-traditional exhibit which requires little money or maintenance. Exhibits, even in this day and age of high-tech, interactive computer gadgetry, do not need to be elaborate to appeal to the public. The most popular exhibit in the SNP East Unit Visitor Center is the "Saguaro Life Cycle", a flat-board display in three sections, one of which has a three-inch saguaro in a pot with a sign noting the age of the cactus (30 years). Granted, it is just inside the building entrance and to the right, immediately deeming it some attention; nevertheless, over half the people in this study approached the exhibit and exclaimed over the little saguaro. The majority of those people did not just look at the cactus and walk away; they spent between 30 seconds and two minutes at the exhibit.

Examples of high priority messages which would not require high tech exhibitry and which could explain management issues and concerns include mountain biking in the park, historical grazing and mining impacts, sensitive areas, caves/mine shafts, and the impacts of fires and fire suppression. More information on these topics might provide a good interplay between park managers, management concerns, and public opinion.

Mountain biking is permitted on one trail in the park, however, this information is not necessarily publicized. Management concerns about restoring trampled areas (from

bikes, cattle, off-trail hikers, etc.) could be better explained in the Visitor Center. Phrases such as "social trails", although used on signs within the park, are not always clear to the general public. Questions regarding such terms were heard at the information desk.

Although there are two interpretive signs about a large fire which occurred in 1994 on the Loop Drive, there is no visible information inside or outside the Visitor Center about fires and fire management. Again, comments and questions about fires and the role they have in SNP were overheard. Presumably, more questions would arise if a clear explanation of fire management and the effects of natural and human-caused fires were incorporated in the exhibit room.

A final recommendation is to conduct a similar study at the SNP West Unit Visitor Center. Such a study could provide an interesting comparison to this one. Systematic observation can be duplicated fairly inexpensively. The west unit center was recently completed and opened to the public. Although the visiting public may not be the same, of special interest would be the number of comments and questions focused on the newer, stylistically different exhibits and bookstore displays on the west side.

Periodic replications of this study in both visitor centers would ensure park administrators stay in contact with the public, and understand which exhibits are effective and which are not. Experimentation with arrows and temporary exhibits would help managers relay their interpretive messages and transfer information to the visiting public in a manner to further inspire public support for the country's national parks.

APPENDIX A**Definition of Terms**

Several terms used throughout the text are defined in alphabetical order.

Attention - Observant notice of an object or person in a museum (adapted from Falk, 1985).

Docent/Volunteer - Unpaid person working in the visitor center who answers questions and at times conducts nature walks and talks.

Exhibit - "Usually an indoor interpretive medium" (Sharpe, 1976:96).

Guided Tour - A ranger or volunteer-led formal program in an informal learning environment.

Holding Power - An exhibit's ability to hold a person's attention. It is usually calculated by the number of people who stop at the exhibit as opposed to how many walk by or glance at it less than three seconds (Robinson, 1928).

Interpretation - "An educational activity which aims to reveal meanings and relationships through the use of original objects, by firsthand experience, and by illustrative media, rather than simply to communicate factual information" (Tilden, 1977:8).

Interpreter - A park ranger who provides information about NPS unit to visitors.

Informal Learning - Occurs in places such as museums, zoos, and aquariums as opposed to a classroom atmosphere.

Museum - Non-profit institution usually open to the public. "Primary function is to collect, preserve, research, and exhibit artifacts for educational purposes" (Booth et al, 1982:6).

Museum Fatigue - Found to occur after 30 to 45 minutes. Attention paid to exhibits drops quickly (Melton 1972).

Park Ranger - Uniformed NPS staff person whose rank is usually indistinguishable to general public. A maintenance person, the superintendent, and a law enforcement patrol ranger may all be mistaken for interpretive rangers.

Self-Guided Trail - A meandering footpath usually placed near areas of visitor concentration such as near visitor centers. (Sharpe, 1976:247).

APPENDIX B

Observation Sheets

Visitor Center - Outside

Survey #

Date ___/___/___

(Every 15 minutes) Car Count: _____

Day of Week: ___ (1 - 7)

Time: _____ (Military)

Weather: ___ (1 = sunny; 2 = overcast; 3 = inclement)

Temperature: ___ (32F - 115F)

Age: _____ (1 = 15-25; 2 = 26-40; 3 = 41-55; 4 = 56+)

Sex: _____ (1 = female; 2 = male)

Race: _____ (1 = anglo; 2 = hispanic; 3 = afro; 4 = asian; 5 = other/unknown)

Handicap Visible: _____ (0 = no; 1 = yes)

Animals Present: _____ (0 = no; 1 = yes)

License/State: _____ Bicyclist: _____ (0 = no; 1 = yes)

Total # in Group: _____ Composition of Group: _____ (1 = couple(s); 2 = all women; 3 = all men; 4 = other)

Children in Group: ___ (0 - 10) Ages: _____

Observer Notes (descriptions, unusual behavior of people, unusual conditions, etc):

Social Interaction within Group: _____ (0 = little/none; 1 = gesturing; 2 = commenting; 3 = childcare; 4 = videotaping/photography; 5 = reading aloud; 6 = questioning; 7 = other - type: _____)

Interaction with Staff: _____ (0-7; type: _____)

Visitor Center - Inside

Survey #

Date: ___/___/___

Time: _____ (military)

Day of Week: ___ (1 - 7)

Weather: ___ (1 = sunny; 2 = overcast; 3 = inclement)

Temperature: ___ (32F - 115F)

Age: ___ (1 = 15-25; 2 = 26-40; 3 = 41-55; 4 = 56+)

Sex: ___ (1 = female; 2 = male)

Race: ___ (1 = anglo; 2 = hispanic; 3 = afro; 4 = asian; 5 = other/unknown)

Handicap Visible: ___ (0 = no; 1 = yes)

Animals Present: ___ (0 = no; 1 = yes)

Total # in Group: ___

Group Composition: ___ (1 = couple(s); 2 = all women; 3 = all men; 4 = other)

Children in Group: ___

Ages: _____

Notes: _____

(Under observer comments, note all that apply: 1 = gesturing; 2 = reading; 3 = glancing; 4 = group discussion about text; 5 = pointing out text to other group members; 6 = reading aloud; 7 = standing, discussion other than about text; 8 = looking around; 9 = waiting for someone; 10 = disciplining child; 11 = making notes, photography, art; 12 = sitting; 13 = other.)

Order: **Station:** **Time Spent:** **Observer Comments/Crowding:**
 (0; 1 = 1-30sec; 2 = 31-60sec; 3 = 1-2min; 4 = 2-5min; 5 = more than 5min)

_____	Saguaro Life Cycle	_____	_____
_____	Exhibit Room - Turned to	_____	(1 = left; 2 = right)
_____	a. Deserts of the World	_____	_____
_____	b. Globe	_____	_____
_____	c. North American Deserts	_____	_____
_____	d. The AZ Uplands	_____	_____
_____	e. Desert Plants = Different	_____	_____
_____	f. Desert Plant Life	_____	_____
_____	g. Living in the Sun	_____	_____

- _____ h. Ecology
- _____ i. The Cactus Family
- _____ j. The Saguaro
- _____ k. When is a Cactus?
- _____ l. Appearances
- _____ m. Traces Left Behind
- _____ n. Relief Map

- _____ Touch/Feel Exhibit
- _____ Saguaro NM
- _____ Free-standing Exhibit
- _____ Picture Window
- _____ Bookshop
- _____ Information Desk
- _____ Roving Staff
- _____ Slide-show Room
- _____ Couch
- _____ Other: _____

Number of staff present: Behind desk _____; Roving _____

Wildlife present outside: _____ (0=no;1=yes;Wildlife noted = megafauna, colorful birds or herps)

Overall Level of Crowding: _____ (H= > 30 visitors; M=11 - 29 visitors; L= < 10)

Presence of wheelchairs, strollers, etc: _____ (0/1)

Comments Overheard Concerning Information Desk, Exhibits, etc.: (cont. on back page, if necessary) _____

Visitor Depreciative Behaviors : _____ (0 = none; 1 = little, e.g. touching globe; 2 = major, e.g. vandalism; 9 = other)

Information Requested: _____ (1 = maps; 2 = purchase materials; 3 = brochures; 4 = talk to ranger/docent at desk)

Type of brochure picked up, if any: _____ (1 = site bulletin; 2 = NPS-related; 3 = glossy map handouts on desk; 4 = other)

Questions asked, if any: _____ (1 = SNP-related, general; 2 = natural history; 3 = cultural history; 4 = Tucson-related, general; 5 = NPS-related; 9 = other)

Notes:

Time Left the Visitor Center: _____

Total Amount of time in Visitor Center: _____

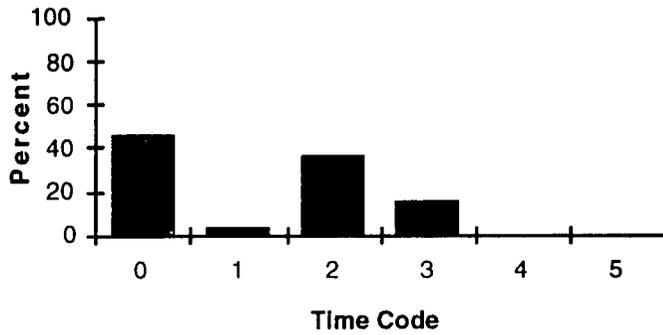
Entered Slide Program: _____ (0/1) Time Slide Program Began: _____

Joined Ranger Program: _____ (0/1) Time Ranger Program Began: _____

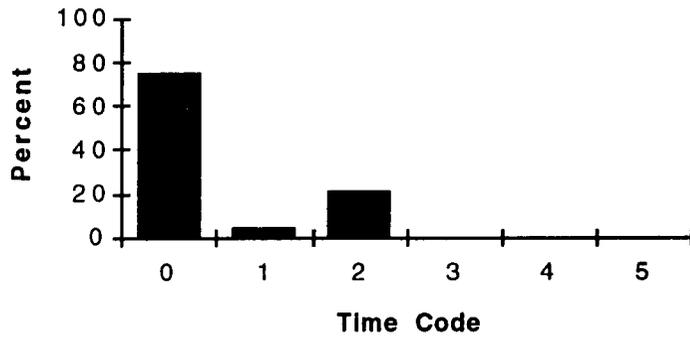
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1 - Exhibit Visited <30 seconds
2 - Exhibit Visited 30 seconds-1 minute
3 - Exhibit Visited 1-2 minutes
4 - Exhibit Visited 2-5 minutes
5 - Exhibit Visited >5 minutes

Appendix C

Saguaro Life Cycle

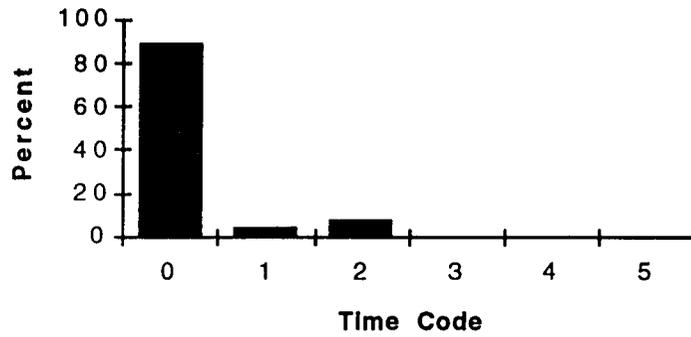


Deserts of World

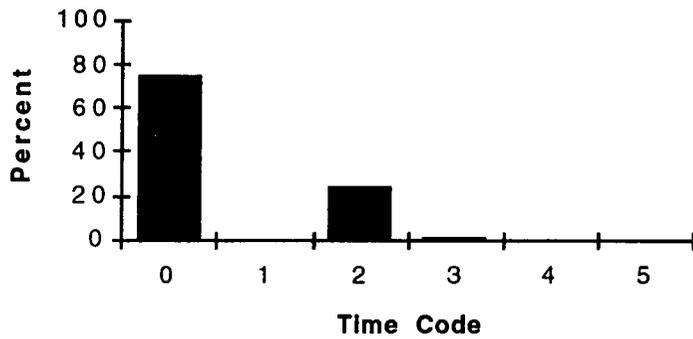


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5 - Exhibit Visited >5 minutes

Globe

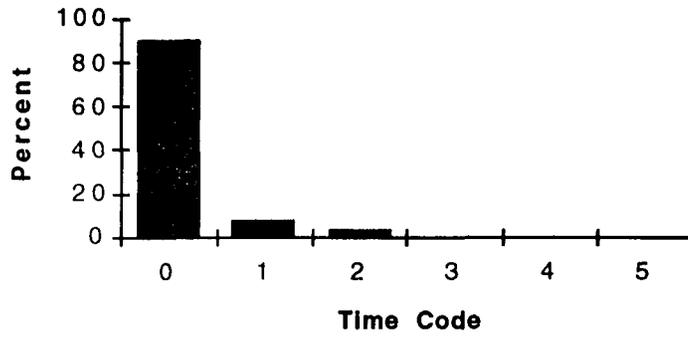


North America Deserts

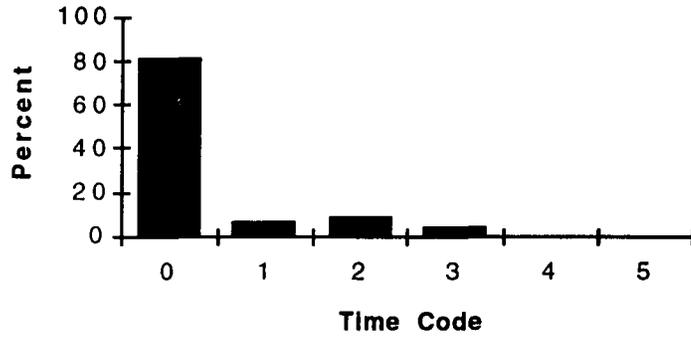


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2 - Exhibit Visited 30 seconds-1 minute
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4 - Exhibit Visited 2-5 minutes
5 - Exhibit Visited >5 minutes

Desert Plants - Different

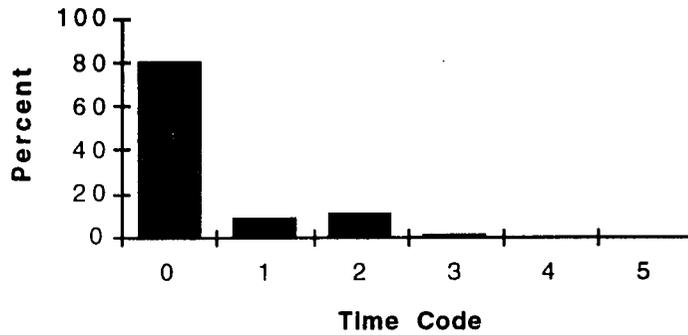


AZ Uplands

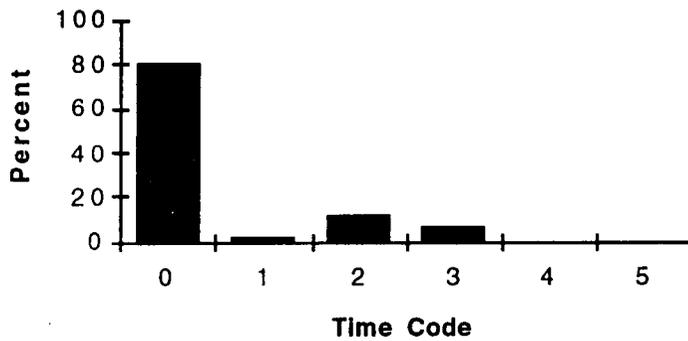


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Living in Sun

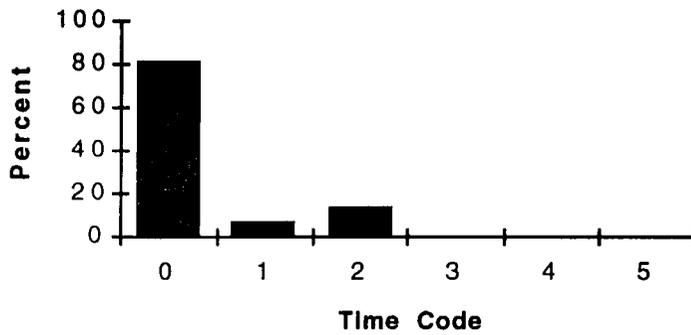


Desert Plant Life

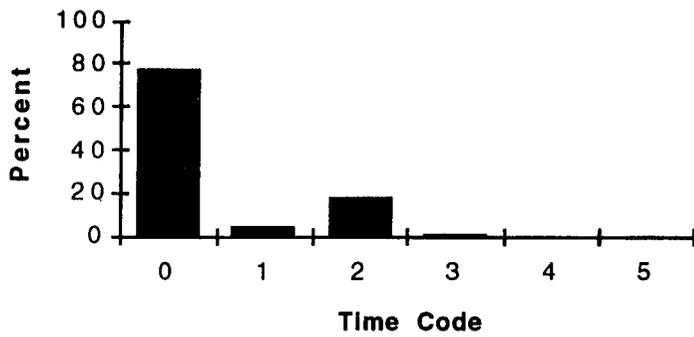


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4 - Exhibit Visited 2-5 minutes
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Ecology

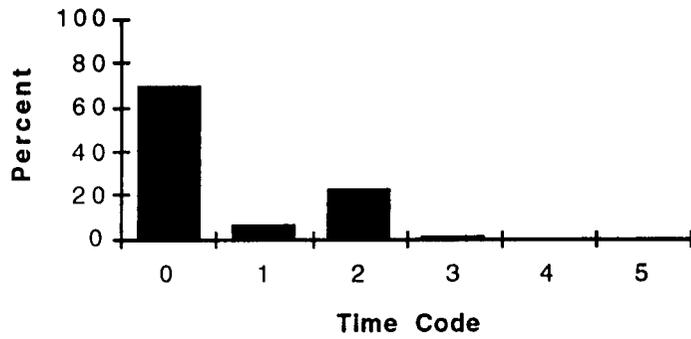


Cactus Family

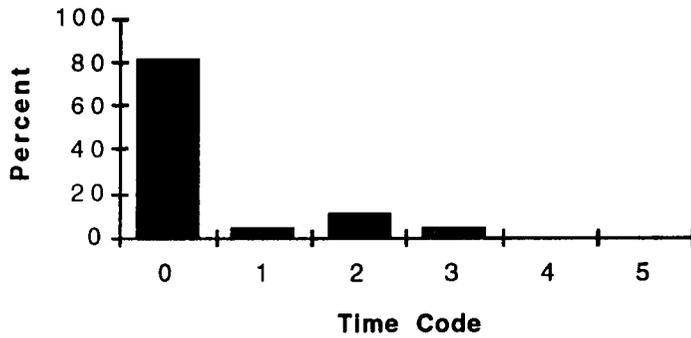


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Saguaro

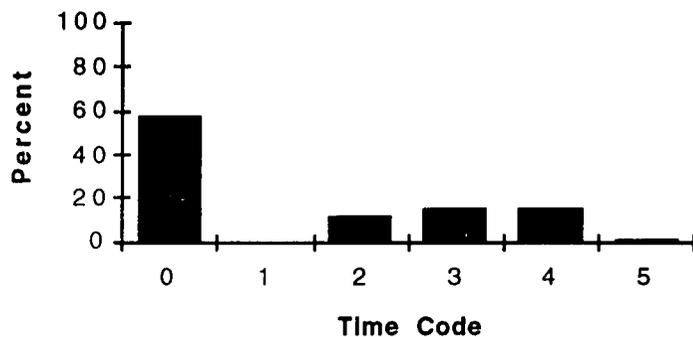


When is a Cactus

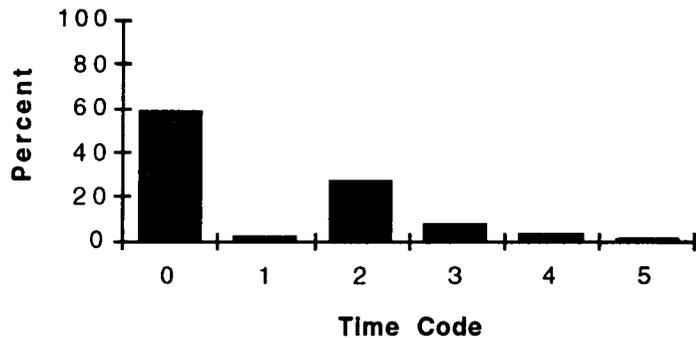


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Appearances

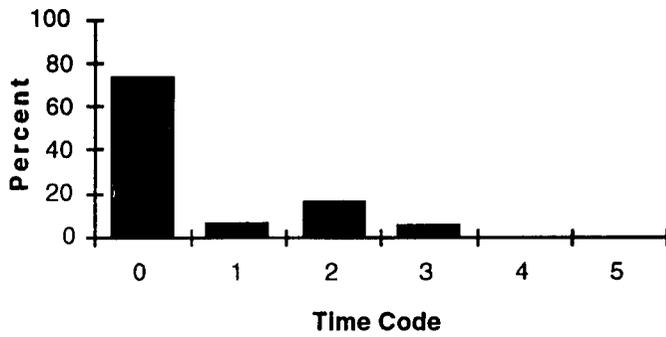


Traces left Behind

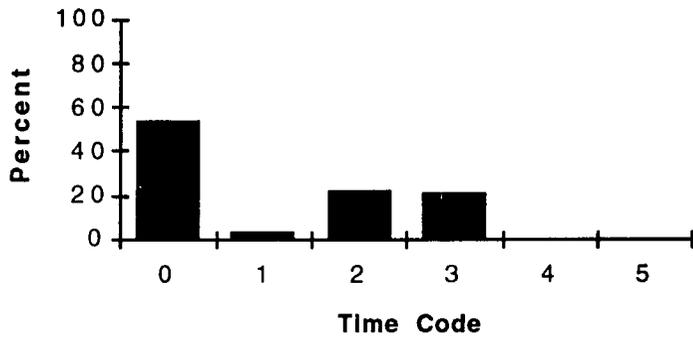


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Relief Map

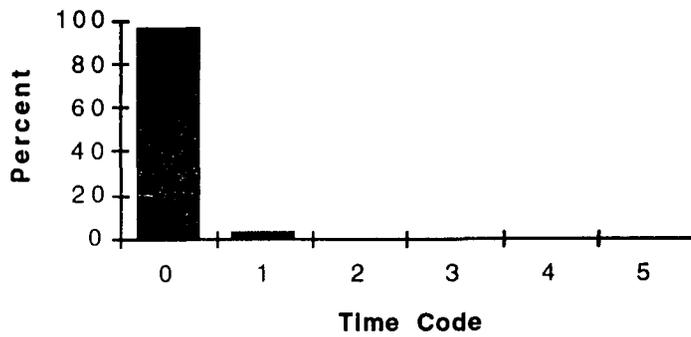


Touch/Feel

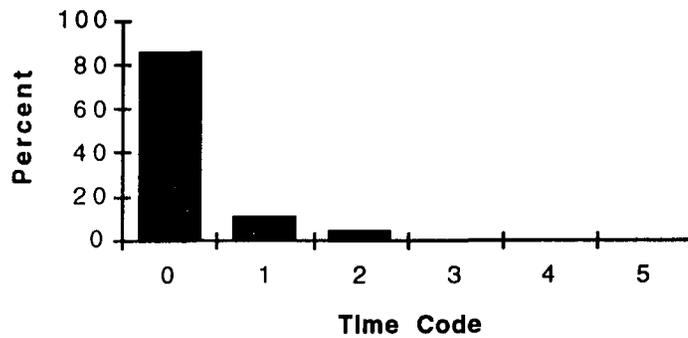


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Saguaro NM

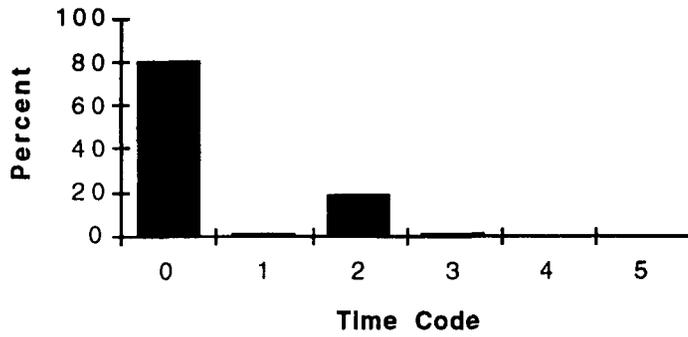


Free-Standing

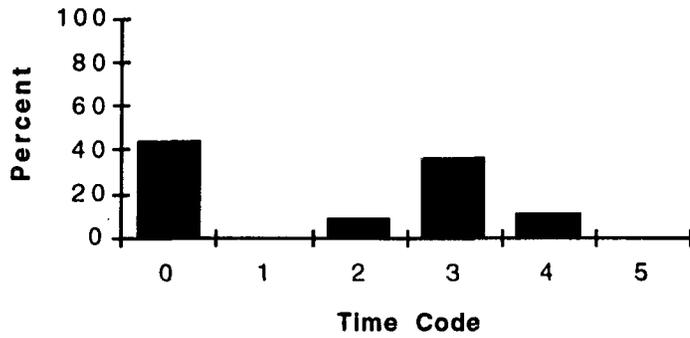


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Picture Window



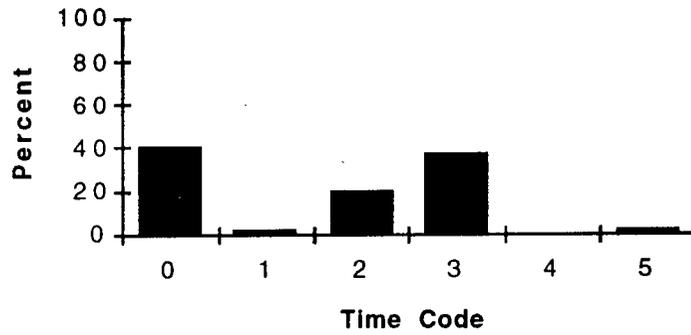
Bookshop



Time Codes: 0 - Exhibit Not Visited
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5 - Exhibit Visited >5 minutes

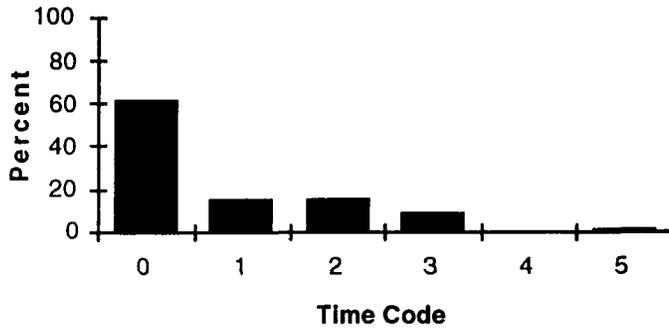
74

Info Desk

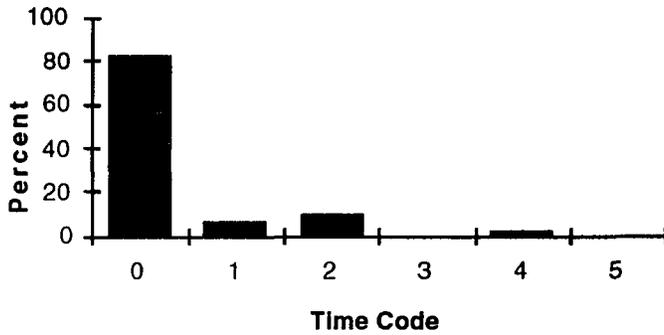


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5 - Exhibit Visited >5 minutes

Passport Table



Other



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