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A STUDY OF AN URBAN POPULATION'S FAMILIARITY

WITH THEIR LOCAL PARKS

By

Daniel M. Spotts

A DISSERTATION

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ABSTRACT

A STUDY OF AN URBAN POPULATION'S FAMILIARITY
WITH THEIR LOCAL PARKS

By

Daniel M. Spotts

Most studies of recreation-site choice have assumed that
recreationists possess complete knowledge of the recreation opportu-
nities available to them, despite empirical evidence to the contrary.
This study contributes to the development of a theory of recreation-
site choice that accounts for people's incomplete knowledge of recrea-
tion sites by identifying relationships between park familiarity and
(1) personal characteristics, (2) distances from residences to parks,
and (3) park-visitation patterns.

Park familiarity is conceptualized as a continuum ranging
from "awareness" that a park exists to detailed "knowledge" of a
park's location and amenities. Data were collected through a
personal-interview survey of 201 residents of Lansing, Michigan.
"Awareness" of parks was measured by asking respondents to indicate
on a list of 19 Lansing parks those they had heard of. "Knowledge"
of a given park was measured by quizzing aware respondents on the
location, features, and facilities of that park. "Park-system aware-
ness" was estimated by the number of parks on the list of 19 parks
that a given respondent had heard of. "Park-system knowledge" for a

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given respondent was estimated by the number of correct answers given to quiz items pertaining to the locations, features, and facilities of nine parks.

Respondents with high awareness of the park system, compared to those with low awareness, were older, had longer residential tenure, participated in more resource-based recreation activities, and included a lower proportion of Blacks. Respondents with high knowledge of most parks, compared to those with low knowledge of these parks, were younger, participated in more recreation activities, and were more likely to reside with children. Individuals with high knowledge of the park system, compared to those with low knowledge, were better educated, participated in more recreation activities, and contained larger proportions of white-collar workers and individuals residing with children.

Awareness of many parks significantly declined with increasing distance from respondents' residences. Those who had visited a given park displayed higher knowledge levels than those who had not, and those who had visited it long ago had lower knowledge levels than those who had done so more recently. Recommendations are made for further research and for park-information dissemination.

ACKNOWLEDGMENTS

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CHAPTER I

INTRODUCTION

Many of the challenges faced by park and recreation profes-
sionals stem from the amount of visitation received by the parks they
manage. In the case of certain national parks, excessive visitation
threatens to destroy both the fragile environments in the parks and
the quality of visitors' experiences (USDI, 1980). In the case of
many neighborhood parks, on the other hand, a lack of visitation
raises questions regarding why these areas are not being used (Gold,
1972, 1977).

Visitation levels are also a central concern in park planning.
When new parks are being planned for a community, state, or region,
it is extremely useful to have accurate estimates of the amount of
visitation that will likely occur so that adequate facilities can be
included in the design.

Visitation levels are the outcomes of hundreds of decisions
that people make regarding whether to visit certain parks. Conse-
quently, considerable research has been conducted on the factors
influencing these choices, with the goal of developing models that
can be used to help manage, understand, and predict park visitation.

Most studies of recreation-site choice have used either
aggregate regression or gravity models to predict the number of

visits to a given site from a given origin area on the basis of:
(1) measures of the size and/or socioeconomic characteristics of a
given area of origin, (2) indices of site attractiveness, and
(3) the distance from a given origin to a given site. More complex
models have included additional variables such as measures of the
availability of substitute sites and subjective measures of a site's
accessibility.

Another characteristic of most of these studies is their
"economic-man" assumption that people possess complete knowledge of
the range of alternative sites available to them. Sluyter (1977),
for example, assumed that "all individuals will have knowledge of
the alternative opportunities and will choose the 'optimal site'"
(p. 35).

Some studies have been reasonably successful in predicting
visitation levels; others have not. Cheung's (1972) regression model,
for example, explained 91% of the variation in the number of day-use
parties traveling from a given origin to each of 12 provincial and
national parks in Saskatchewan. Independent variables included the
population size of a given origin, park attractiveness, distance, and
substitute recreation sites. Population size and distance alone
explained 84% of the variation in the dependent variable.

Similarly, Cesario and Knetsch's (1976) model explained 87%
of the variation in the number of day-use parties traveling to 38
state parks in Pennsylvania, New York, and New Jersey. Independent
variables included population size, park attractiveness, and the

combined monetary and temporal cost of traveling from a given origin to a given park.

Other studies have been less successful in modeling recreation-site choices. Sluyter (1977), for example, developed a series of regression models to predict day-use of public-access boat-launch sites in Michigan. The model with the highest R^2 value, which predicted visitation to eight sites in the southern portion of Michigan's lower peninsula, explained only 53% of the variation in the dependent variable. Independent variables included population size, site attractiveness, travel time, subjective measures of accessibility, and lake acreage.

Similarly, Dee and Liebman (1971) developed 18 regression models to predict attendance at various types of playgrounds by various age groups of children. The median R^2 value was only 0.57. Independent variables included distance and the available of publicly and privately owned substitute facilities.

One possible explanation for the relatively low predictive power of some site-choice models may be their assumption of perfect knowledge, which may be particularly unrealistic in some situations. People may have only limited familiarity with recreation areas that typically do not receive much publicity--such as boat-launch sites and playgrounds. And if people are ignorant of the existence of certain areas, they obviously will not consider them in their decision making and will not visit them. Or even if people are aware of the existence of certain recreation sites, their ignorance of the specific facilities at these sites may likewise prevent visitation from

occurring. Thus the failure to account for incomplete familiarity with recreation sites may have introduced errors into site-choice models.

Evidence of Ignorance

There is considerable evidence that the public indeed lacks complete knowledge of recreation sites. The National Urban Recreation Study (USDI, 1978) found that recreation facilities and programs in some cities were unknown to many people, and it recommended an expansion of "local efforts to inform citizens of existing recreation opportunities" (p. 112).

Research has disclosed that some people are ill-informed even of those urban parks that are close to their homes. Hayward, Weitzer, and Mores' (1980a, 1980b) studies of urban parks in New England revealed considerable ignorance of park rules and park features among people who lived within a mile of these parks and who had visited them within the last year. Recreation Resource Consultants (1972, p. 46) queried inner-city residents of Lansing, Michigan, and found that 10% did not know the locations of the two parks closest to their home, 21% had no knowledge of the recreation facilities available at either park, and 26% could not recall the name of either park. Similarly, Butler and Booth (1979, p. 122) found that 30% of a sample of London, Ontario, residents could not identify the park nearest their residence. The results of surveys conducted in Rockford, Illinois; St. Petersburg, Florida; and Washington, D.C., are consistent with this pattern. When asked why they had not used the recreation

facility closest to their home in the last month, ignorance of the facility or of its programs was cited by 10% of the Rockford respondents, by 12% of the St. Petersburg respondents, and by 26% of the Washington, D.C., respondents (Hatry et al., 1977, p. 48). These studies suggest that ignorance of nearby recreation opportunities may be a factor contributing to the phenomenon of nonuse of neighborhood parks mentioned earlier.

The results of other studies suggest that ignorance of parks that are more distant from people's homes may be more widespread. In a survey of visitors at the six Ingham County, Michigan, parks (Fritschen, Nelson, & Moncrief, 1979), respondents were asked if they had "heard of" each of the other five parks in the county system. Subsequent analysis (Stynes, 1982) revealed that, on the average, 45% of the sample was unaware of the other five county parks. Similarly, a pilot study conducted in Vancouver found that, when presented with a map showing the outlines of nearby metropolitan parks, "residents on one side of the city had little or no knowledge either of the names or of the attributes of parks on the far side of the city."[1]

There is also some evidence that ignorance of recreation opportunities does affect decision making regarding visitation. Thirty-two percent of the respondents to the Third Nationwide Outdoor Recreation Survey affirmed that "lack of information on outdoor recreation areas" had prevented them from using such areas in the past year (Robinson, 1979). This may be only a conservative estimate

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[1]Mercer (1971, p. 141) describes this unpublished study conducted by Timothy O'Riordan.

of the extent to which ignorance precludes visitation since many
respondents may not have realized that they were ignorant of outdoor-
recreation areas and that this was preventing them from visiting
these areas.

The empirical evidence cited above clearly suggests that
people make recreation-site choices based on incomplete information
and that many of these decisions are therefore suboptimal in nature.
Thus it would appear that the economic-man assumption of fully
rational behavior based on perfect knowledge of recreation sites is
unrealistic. Simon's (1957) concept of "bounded rationality" is
more consistent with the evidence. Simon suggests that individuals
formulate simplified models of reality and base their decisions on
these conceptions rather than on objective reality. This occurs
because an individual faced with a decision usually cannot gather
enough information about the situation to assess accurately the range
of risks and returns involved and to delimit all available alterna-
tives. By creating and considering only a simple model of reality,
the individual significantly reduces the difficulty of decision making.

Since ignorance of recreation sites exists, and since this
ignorance appears to have an influence on visitation decisions, it
would appear that the familiarity factor should be explicitly accounted
for in conceptualizations of recreation-site choice. In past studies
of recreation-site choice, this factor probably has been only
indirectly and partially accounted for by virtue of its correlation
with some of the variables of these studies, such as distance,
socioeconomic characteristics, and site attractiveness. Such

correlations are suggested by Stynes' (1982) findings that awareness of the Ingham County parks was related to distance, years of residence in the county, and gender, and that the parks that offered popular activities had the highest awareness levels.

A Proposed Model of Recreation-Site Choice

Figure 1 presents a hypothetical model of recreation-site choice that takes account of the familiarity variable. Distance, site attractiveness, and socioeconomic characteristics, which have been included in past studies of recreation-site choice, remain as important elements of this model.[2] However, familiarity and a variety of other variables believed to be important direct and indirect influences on site choices are included as elaborations of previous conceptualizations.

The model in Figure 1 proposes the following processes and relationships. A visit to a recreation site is the outcome of an individual's site choice.[3] Several factors influence this decision: the distances from the individual's home to alternative sites; the

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[2]Site attractiveness can be considered a function of the "site characteristics" portrayed in Figure 1. The "personal characteristics" depicted in Figure 1 include socioeconomic characteristics and indices of an individual's participation in recreation activities.

[3]Recreation-site choices are probably intimately related to recreation-activity choices. One's selection of a recreation site may be influenced by one's choice of activities to participate in. Alternatively, one's selection of a recreation activity to participate in may be influenced by one's choice of a site to visit. The interaction of recreation-site and recreation-activity choices has yet to be fully explored. In Figure 1, the process of choosing a recreation site is assumed to involve also the process of choosing one or more recreation activities to participate in.

Feedback Loop

Influences on
Psychological States

Distances from
Home to Sites

Psychological States

Social Relationships

Site Characteristics

Perceptions of sites

Familiarity with sites

Preferences for sites

Choice of Site

Visitation

Personal Characteristics

Mass Media
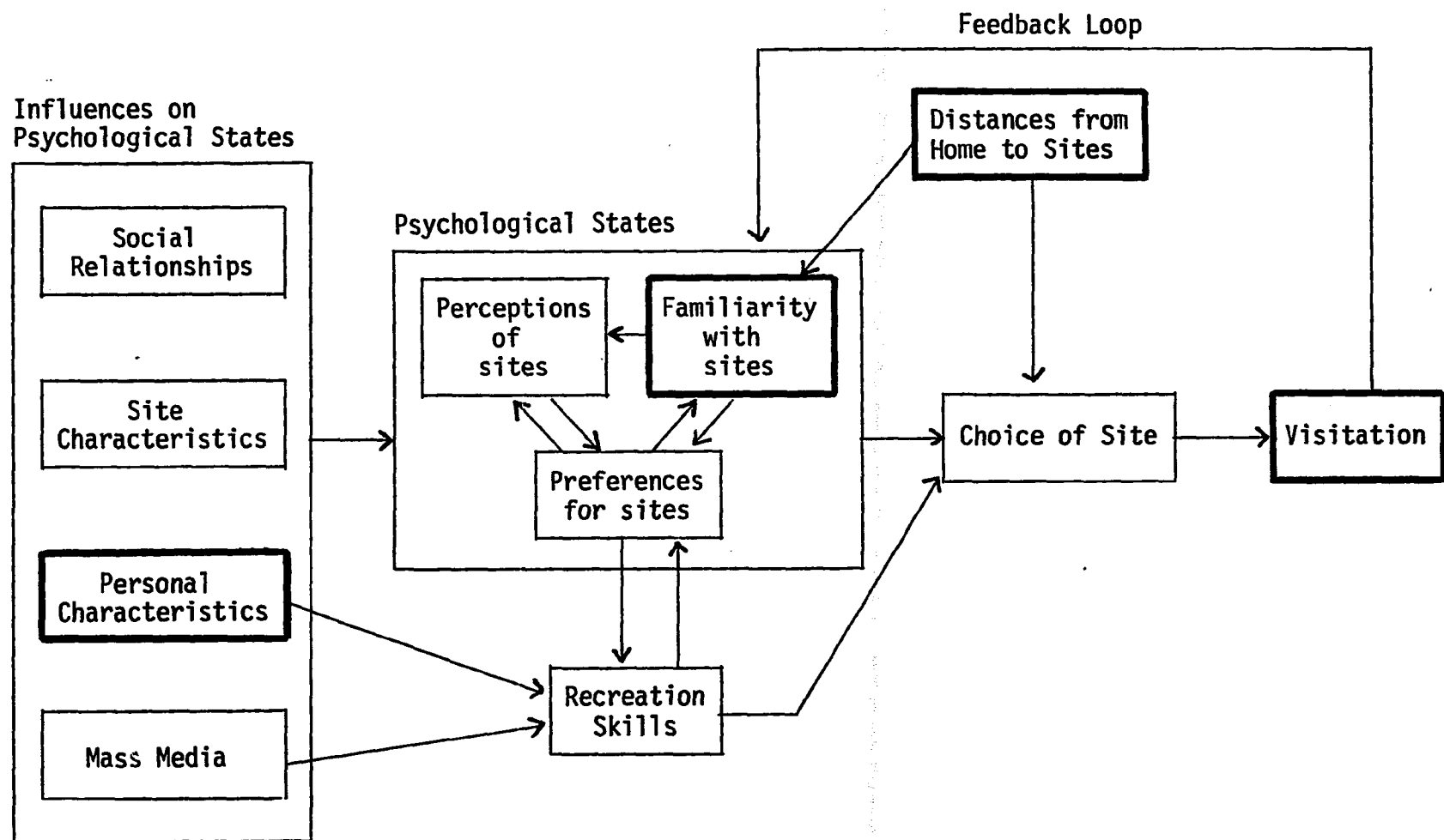
Recreation Skills

Figure 1.--A proposed model of recreation-site choice.

individual's perceptions of, familiarity with, and preferences for
alternative sites; and the individual's recreation skills.

Perceptions, familiarity, and preferences are interrelated
psychological states that are each influenced by the characteristics
of recreation sites, the personal characteristics of recreationists,
social relationships, and the mass media. Familiarity is also influ-
enced by the distances from an individual's home to the alternative
recreation sites: People who live close to a recreation site are
more likely to be familiar with it than people who live far from it.

Personal characteristics and the mass media influence recrea-
tion skills as well as perceptions, preferences, and familiarity.
Once visitation occurs, the experience has the effect of altering
an individual's perceptions, preferences, and level of familiarity.
This effect is symbolized by the feedback loop in Figure 1.

Support for the Model

Not all of the hypothesized relationships in Figure 1 have
been subjected to investigation. Some of these relationships, however,
have been examined in various studies. The results of these investi-
gations provide a degree of support for the model.

Stynes' (1982) findings (reviewed above) support the hypothe-
sized relationships between familiarity with recreation sites and
personal characteristics, site characteristics, and distance. Buhyoff,
Leuschner, and Wellman (1979) found that forest stands along the Blue
Ridge Parkway that were damaged by an infestation of southern pine
beetle were perceived more negatively by people who knew the cause

of the damage than by people who did not. This supports the hypothesized influence of familiarity on perceptions of recreation sites.

The results of several studies support the hypothesis that familiarity with recreation sites affects site choices. Both ex post facto studies (Adams, 1971, p. 16; Deasy & Griess, 1966; Maw, 1974, p. 105) and field experiments (Brown & Hunt, 1969; Colton, 1970) indicate that timely and relevant information can influence people's decisions regarding whether to visit certain recreation sites. Field experiments have also demonstrated that information can influence people's decisions regarding whether to travel to certain areas within recreation sites (Blake, 1971; Krumpe, 1979; Lime & Lucas, 1977; McDonald, 1969, p. 17; Reyburn & Knudson, 1975; Roggenbuck & Berrier, 1982).

The results of two studies support the hypothesis that visitation influences familiarity. McDonald (1969, p. 5) found that people who had previously visited Yellowstone National Park had greater familiarity with the park's interpretive facilities than first-time visitors. Similarly, Hammitt (1981) found that people's experiences at a botanical area tended to increase their familiarity with this site.

Banerjee (1977) found that people under 25 years of age, compared to older individuals, had more positive perceptions of a natural coastline in a state park and more negative perceptions of developed coastlines. This provides some evidence that at least one personal characteristic is related to perceptions of recreation sites.

Carls (1974) found that people's preferences for outdoor-recreation scenes depicted in color photographs decreased as the levels of development in these scenes increased. This supports the hypothesized relationship between site characteristics and preferences for recreation sites. Goodrich's (1978) findings that favorable perceptions of vacation destinations were highly correlated with preferences for such areas support to some extent the hypothesized interrelation of perceptions and preferences.

Distance and similar variables (such as travel time) were found to be important predictors of visitor flows from a given origin to a given recreation site in each of the studies of site choice reviewed above. This supports the hypothesized influence of distance on recreation-site choices.

Delimitation of the Study

The model presented in Figure 1 provided the theoretical context for this study. This investigation examined how familiarity with recreation sites was related to three other variables highlighted in Figure 1: (1) personal characteristics, (2) distances from residences to sites, and (3) visitation to sites. These relationships were studied to facilitate the inclusion of the familiarity factor in a comprehensive theory of recreation-site choice; including this factor in such a theory requires a determination of whether the factor is related to other variables in the model and, if so, how the factor is related to these other variables.

Although relationships between the above three variables and familiarity had been studied by Hammitt (1981), McDonald (1969), and Stynes (1982), further research into these relationships was necessary for several reasons. Hammitt's (1981) and McDonald's (1969) findings suggest that visitation positively influences familiarity. Consequently, it was considered necessary to more thoroughly examine relationships between these two variables. This was done by investigating relationships between familiarity and two specific visitation patterns: the recency of an individual's last visit to a park and the frequency of his or her visitation to that park.

The relationships suggested by Stynes (1982) findings--that park awareness is related to distance and personal characteristics-- needed to be more fully explored for three reasons. First, respondents were questioned only on whether they had "heard of" various parks and were not queried on other aspects of their familiarity such as their knowledge of park locations and amenities. Second, respondents were park visitors who were likely to be more familiar with parks than nonvisitors. It was hypothesized that somewhat different relationships existed in general populations. And third, relationships between park awareness and both distance and personal characteristics were identified in the context of a general regression model designed to simultaneously explain variation in the sample's awareness of all six Ingham County parks. This approach is useful for identifying overall relationships. However, relationships that may exist for different types of parks analyzed one at a time are also worthy of investigation.

This study advanced beyond Stynes' (1982) research (1) by measuring not only whether people had "heard of" selected parks but also whether they were familiar with the locations and amenities of these parks, (2) by studying a sample drawn from a general population rather than a sample of park visitors, and (3) by identifying relationships between park familiarity and other variables as they exist for selected types of parks examined one at a time rather than simultaneously. The general approach taken was a personal-interview survey of the Lansing, Michigan, population that queried people about their familiarity with and use of selected types of local parks.

Only the hypothesized relationships between familiarity and personal characteristics, distance, and visitation were formally tested in this study. Relationships between familiarity and site characteristics were, however, indirectly and informally examined by determining which of the above variables were related to people's familiarity with which types of parks. Also, the hypothesized influence of the mass media and of social relationships on familiarity was superficially investigated by determining the extent to which people learned of certain parks through the mass media or through friends, relatives, co-workers, etc.

The relationship between preferences for recreation sites and familiarity with recreation sites was not studied. The hypothesized influence of familiarity on perceptions of recreation sites and on the actual choice of a site was also not studied. Furthermore, no consideration was given to those relationships shown in Figure 1 that do not involve the familiarity variable. Thus this

study was not a comprehensive investigation of the entire recreation-site-choice process, nor was it a complete investigation of the role of familiarity in site choices; it only examined certain elements of this role.

Objectives

1. Measure the public's familiarity with an urban park system and with selected types of urban parks.

2. Assess the reliability, validity, and reproducibility of these measures.

3. Investigate relationships between urban-park familiarity and personal characteristics.

4. Investigate relationships between urban-park familiarity and distances from individuals' homes to urban parks.

5. Investigate relationships between urban-park familiarity and patterns of visitation to urban parks.

Discussion of Objectives

Measurement of Park Familiarity

Park familiarity has not been adequately conceptualized and measured in past studies. This has hindered a complete understanding of this phenomenon since to understand any phenomenon and its relation to other variables, it is obviously necessary to develop useful conceptualizations and measurements of it.

Most studies that have measured park familiarity have been surveys such as those cited above, which included a single question on this subject along with a host of questions on other subjects.

This single question typically measured only one aspect of one park, such as the name of the park closest to respondents' homes. These studies consequently have revealed nothing about people's familiarity with the range of parks available to them or about the extent of their familiarity with the various aspects of these parks, such as their locations, features, and facilities.

Furthermore, the issue of how park familiarity should be conceptualized and measured has not even been discussed in any studies. In contrast, the methodological issues associated with measuring perceptions of and preferences for landscapes (including recreation sites) have been discussed in numerous studies (e.g., Penning-Rowsell, 1975; Penning-Rowsell & Hardy, 1973; Probst & Buhyoff, 1980). This study advanced beyond past efforts to measure park familiarity by (1) conceptualizing this phenomenon, (2) weighing alternative measurement techniques, (3) measuring the public's famil-iarity with a large number of parks, and (4) assessing in detail the measurement properties of the resulting scales.

Park Familiarity and
Personal Characteristics

Relationships between park familiarity and personal char-acteristics were studied because it was considered likely that people's personal characteristics have a significant bearing on the extent to which they are familiar with parks. An individual's edu-cational attainment and whether an individual resided with children were considered to be particularly likely correlates of park famil-iarity.

People with relatively high levels of education were expected to be overrepresented among those with high familiarity with most parks. This hypothesis seemed plausible since the members of upper social classes have been found to possess greater knowledge of retail stores (Potter, 1979) and of cities in general (Orleans, 1973). People residing with children were also expected to be overrepresented among those with high familiarity with most parks since such individuals would be more likely to have learned about parks from the children in their households and to have sought and obtained information about recreation facilities for children.

Park Familiarity and Distance

Relationships between park familiarity and distance were investigated because it was considered likely, based on geographic studies, that distance exerted a significant, negative influence on park familiarity. Bowlby (1972, p. 44) and Hanson (1977, p. 75), for example, found that people who lived close to certain grocery stores were much more likely to know of these stores than people who lived far from them. It was hypothesized that people who lived close to certain types of urban parks would, similarly, be much more likely to know of them than people who lived far from them. A dramatic decline in awareness levels with increasing distance from people's homes to a given park was expected in the case of neighborhood parks, and a less dramatic decline in the case of other types of parks that were more widely publicized and used.

It was reasoned that the discovery of a negative relationship between park familiarity and distance would imply that a park's awareness level, calculated as the percentage of an entire sample that was aware of it, should ideally be supplemented with figures describing the awareness levels of people residing at various distances from this park. Such figures might indicate, for example, that a park had an overall awareness level of 70%, but an awareness level of 90% among nearby residents, and an awareness level of only 30% among distant residents.

Park Familiarity and
Park-Visitation Patterns

As mentioned above, relationships between park familiarity and certain park-visitation patterns were studied to provide a more thorough understanding of the apparent influence of park visitation on park knowledge. The two visitation patterns that were selected for study—recency and frequency of visitation—were considered likely to provide some insights into the dynamics of park familiarity. It was hypothesized that park familiarity increased with increasing frequency of visitation and declined with the passage of time since an individual's last visit.

Organization of the Paper

The initial chapters of the dissertation discuss how park familiarity was conceptualized, operationally defined, and measured in this study. This initial portion of the paper also discusses the measurement properties of the resulting scales. The remainder

of the study deals with how park familiarity was related to personal characteristics, distances from people's homes to parks, and park-visitation patterns. In the chapter on relationships between park knowledge and park-visitation patterns, a simple model of "park-information flow" is proposed, which integrates many of the findings presented throughout the paper. The final chapter summarizes and discusses the results, notes the limitations of the study, and suggests topics for further research. The basic descriptive results that emerged from the survey are discussed in Appendix A. Some recommendations for the dissemination of information about parks, based on some of the findings of this study, are presented in Appendix B.

CHAPTER II

CONCEPTUALIZING AND MEASURING PARK FAMILIARITY

The results of an investigation into any phenomenon depend
on how that phenomenon is conceptualized and measured. In this chap-
ter, the concepts of "awareness" and "knowledge" will be defined first
as general terms and then as terms applied to individual parks and
park systems. This will be followed by a discussion of the alterna-
tive techniques available for measuring awareness and knowledge, and
a rationalization of how awareness and knowledge were measured in
this study.

Conceptualizing Park Familiarity

An individual's familiarity with something can be conceptual-
ized as a point on a continuum ranging from a state of being merely
conscious of the existence of something, to a state of being inti-
mately familiar with this thing. The lower extreme of the continuum--
the state of being merely conscious of the existence of something--
can be defined as "awareness." All other points on the continuum,
which represent deeper degrees of familiarity, can be defined as
"knowledge," in keeping with one of Webster's definitions of knowledge
as "the fact or condition of knowing something with a considerable
degree of familiarity gained through experience of or contact or

association with the individual or thing so known" (Webster's Third New International Dictionary, 1976, p. 1252). Knowledge, then, can be viewed as a deeper form of familiarity than awareness.

Several authors make a similar conceptual distinction between awareness and knowledge. Rogers and Shoemaker (1971, p. 106), in their classic volume on the diffusion of innovations, distinguish between the mere awareness that an innovation exists and two deeper forms of familiarity--knowledge of how to use the innovation properly, and knowledge of the principles underlying its functioning. Likewise, Lavidge and Steiner (1961, p. 61) describe a series of steps that consumers pass through as they progress from total ignorance of a product to a decision to purchase it. The first step is described as awareness of the existence of the product, and the second step as knowledge of what the product has to offer. This clearly implies a view of awareness as a basic form of familiarity that provides a foundation for knowledge as a deeper form of familiarity.

The distinction between awareness and knowledge as applied to innovations and consumer products can easily be extended to the case of parks. A person is either aware or unaware of the existence of a park, and those aware of it may possess varying degrees of knowledge of what the park has to offer. In this study the term "awareness," as applied to an individual park, refers to the state of being conscious of the park's existence, and "knowledge" refers to familiarity with the park's location and/or amenities. These definitions imply, of course, that an individual possesses knowledge of a park only if that individual is aware of its existence.

The concepts of awareness and knowledge as applied to individual parks can be extended to apply to an entire park system. An individual may merely be aware of the existence of one or more of the parks in a park system, or an individual may be aware of their existence and also familiar with their locations and amenities. The former state may be termed "park-system awareness," and the latter state "park-system knowledge." The extent to which one is aware of a park system, then, is the extent to which he or she is conscious of the existence of each of the parks in a given park system. This may be considered the "breadth" of one's familiarity with the park system. The extent to which one possesses knowledge of a park system is the extent to which he or she is familiar with the locations and amenities of each of the parks in a given park system. This may be considered the "depth" of one's familiarity with the park system.

Since one can be familiar with the locations and amenities of only those parks that one is at least aware of, there is clearly some overlap in the concepts of park-system awareness and park-system knowledge. Thus if an individual possesses some knowledge of three of the parks in a park system, this individual must be aware of at least three parks in the park system. If, on the other hand, an individual is aware of three parks in the park system, it does not necessarily follow that this individual possesses knowledge of these parks beyond merely being conscious of their existence.

Measuring Park Familiarity

Measuring Awareness

Two approaches have been employed to measure awareness--unaided recall and aided recall. Both techniques have been widely used in marketing and advertising research to measure brand awareness and advertising effectiveness. The unaided-recall technique involves asking respondents to recall specific facts without any assistance from the interviewer or questionnaire. The aided-recall technique, on the other hand, involves asking respondents to recall facts after they have been informed of the general subject matter through the wording of the question or some other means. A study of the public's awareness of Smokey the Bear (Haug Associates, 1968) illustrates the distinction between these two techniques. Interviewers measured unaided recall of Smokey by simply showing a picture of him to people and asking, "Who is this a picture of?" Next they measured aided recall of Smokey among people unable to answer this question by saying, "This is a picture of Smokey the Bear. Have you heard his name before?"

Both the unaided- and aided-recall techniques have been used to measure awareness of individual parks and park systems. Butler and Booth (1979) used the unaided-recall technique to measure awareness of individual parks by asking respondents to name the park closest to their homes. Recreation Resource Consultants (1972) used this technique to measure awareness of the Lansing park system by asking respondents to name as many of Lansing's parks as they could think of. Fritschen, Nelson, and Moncrief (1979) used the aided-recall technique to measure awareness of individual parks by presenting

respondents with a park's name and then asking if they had heard of it. Since each respondent was queried in this manner about each of the parks in the county system, the resulting combination of responses constituted a measurement of that individual's awareness of the park system using the aided-recall technique.

Both the unaided- and aided-recall techniques have advantages and disadvantages. The main disadvantage of the aided-recall technique is that it makes it possible for respondents to report that they are aware of something when in fact they are not. This, of course, is not possible with the unaided-recall technique, since respondents must come up with the specific information requested on their own.

The main disadvantage of the unaided-recall technique is that it can yield somewhat erratic results. A respondent may fail to mention the name of a park he or she is actually aware of simply because of a less than thorough memory search. This is especially likely if respondents are asked to name as many parks as they can think of rather than just the park closest to their homes. Furthermore, respondents may fail to mention the names of parks they are aware of simply because their memories fail to serve them well during their interviews, particularly if these interviews are tense situations for them. Both of these factors affect the reliability of results produced by the unaided-recall technique--i.e., somewhat different results may emerge if the same people are interviewed in the same way at a later time. The aided-recall technique is affected by the same difficulties but to a lesser extent, because providing some information to respondents serves to focus their minds on the subject matter

under investigation. For this reason, the aided-recall technique was selected for use in this study to measure awareness of both individual parks and a park system.

Respondents were given a list of parks and were asked to indicate for each park on the list whether they had heard of it. The resulting responses represented measures of each respondent's awareness of each park on the list. The total number of parks on the list that a respondent reported having heard of was used as a measure of that respondent's awareness of the park system.

Special methods (described in the next chapter) were employed to account for the possibility of insincere or confused responses. It would have been possible to use both the unaided- and aided-recall techniques, as in the Smokey the Bear study, but the added complexity of using both methods to collect data on a large number of parks outweighed the potential benefits of this approach.

Measuring Knowledge

Six techniques have been employed to measure the public's knowledge of a wide variety of subjects: (1) open-ended questions, (2) item listing, (3) map sketching, (4) map placement, (5) photograph identification, and (6) discriminatory testing. Each will be discussed below. The first three techniques can be considered "unaided-recall" techniques since they measure knowledge without providing any assistance to respondents; the other techniques can be considered "aided-recall" techniques since they provide respondents with a degree of assistance (Figure 2). Thus in the context of
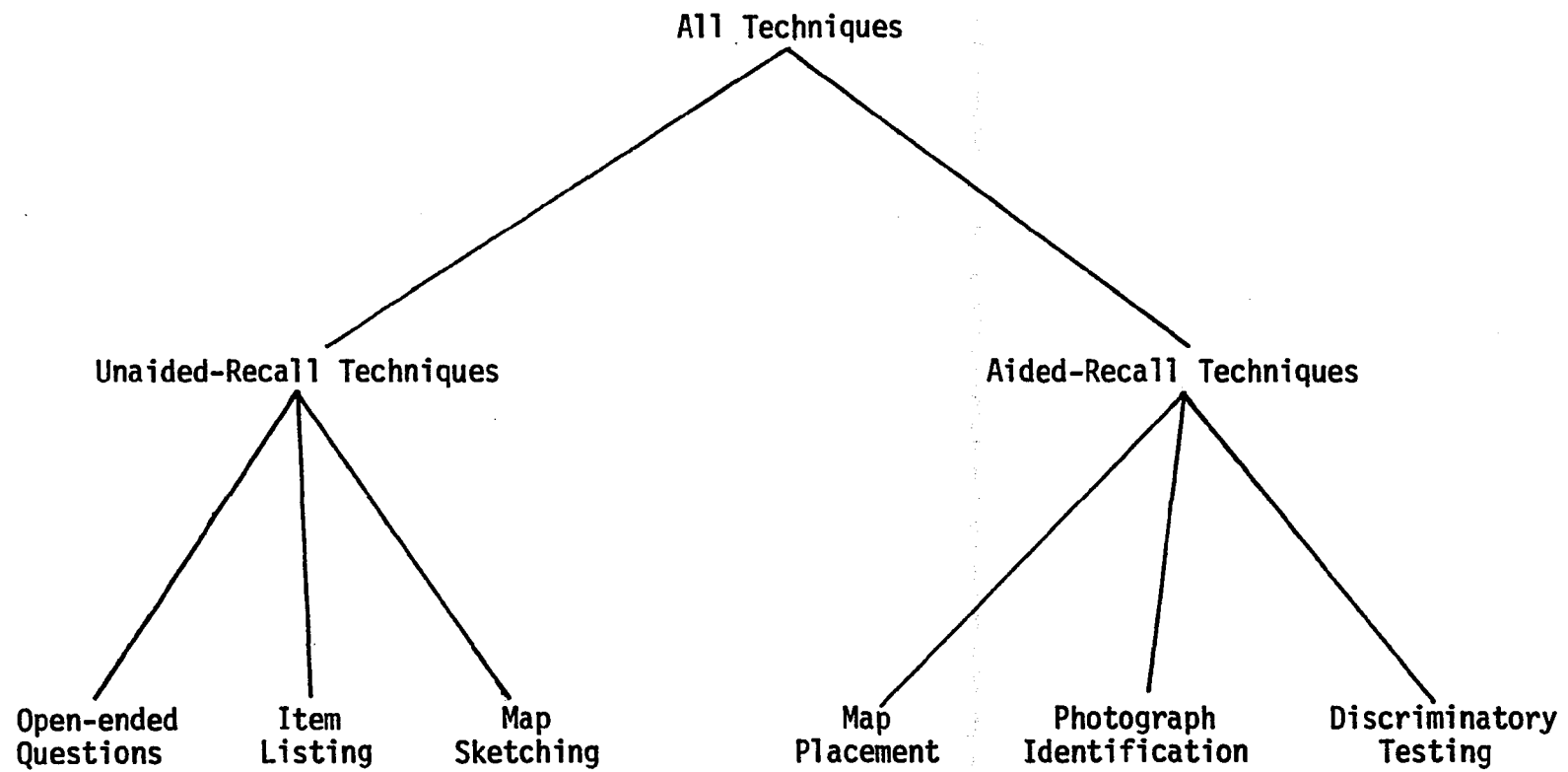
Figure 2.--A typology of techniques that have been used to measure knowledge.

measuring knowledge (as opposed to awareness), "unaided recall" and "aided recall" are generic terms rather than names for specific techniques.

Unaided-Recall Techniques

Knowledge has been commonly measured in the social sciences by asking respondents open-ended questions such as, "How many judges serve on the Supreme Court?" Sociologists and political scientists have used this technique to measure knowledge of the facts surrounding the Kennedy assassination (Spitzer & Denzin, 1965), and knowledge of various political facts (Hastings, 1956; Matthews & Prothro, 1966; McCormick & Wahl, 1955).

The item-listing technique involves asking respondents to list every aspect or element of a subject that they have knowledge of. Hayward, Weitzer, and More (1980a, 1980b), for example, employed this technique by asking respondents to name as many of the "different places or facilities" in selected urban parks as they could think of.

The map-sketching technique involves asking respondents to draw a map of an area. Lynch (1960) and Orleans (1973), for example, asked respondents to draw maps of certain cities, showing all the streets, neighborhoods, and landmarks they could think of.

Aided-Recall Techniques

The map-placement technique involves asking respondents to indicate on a map the locations of certain types of places they are familiar with. Potter (1979), for example, asked respondents to

indicate on a street map "all of the shopping places with which they were personally acquainted." This is considered a technique for measuring knowledge, rather than awareness, since it measures not only whether respondents are aware of the existence of certain places, but also whether they are familiar with the locations of these places.

Photographs have also been used to measure knowledge. Milgram and others (1972) measured people's knowledge of New York City by showing them color slides taken at various points in the City and asking them to identify the borough, neighborhood, and street associated with each scene. Hayward et al. (1980a, 1980b) similarly measured people's knowledge of selected urban parks by showing them photographs of park interiors and asking them to indicate on maps of the parks where they thought each photograph was taken. Hammitt (1981) measured people's knowledge of a botanical area by showing them photographs of the area and asking them whether each of the recorded scenes was familiar to them.

The discriminatory-testing technique involves presenting respondents with a question and two or more possible answers, and asking them to select the correct response. This technique often takes the form of true-false and multiple-choice questions, much like those of school examinations. Like open-ended questions, discriminatory testing is a commonly used method for measuring knowledge in the social sciences. Sociologists and political scientists have used this technique to measure knowledge of medical facts (Lewis, 1963), nuclear weapons (Putney & Middleton, 1963), foreign countries (Robinson, 1967), and current events (Suchman, 1950). Recreation researchers have used

this technique to study the public's knowledge of wilderness concepts (Young, 1978), and their knowledge of rules and codes of conduct governing the use of city parks (Hayward et al., 1980a, 1980b), campgrounds (Ross & Moeller, 1974), and wildlands (Folkman, 1965, 1979).[1]

It is important to distinguish the above techniques for measuring knowledge from the various techniques for measuring perceptions. The measurement of knowledge is the measurement of how much someone actually knows about something. The measurement of perceptions, on the other hand, is the measurement of how an individual views or feels about something. Lynch (1960), for example, measured people's perceptions of selected cities by asking them what elements of the cities they thought were "most distinctive."

Other researchers have measured people's perceptions of their knowledge of something. Bowlby (1972) and Hanson (1973, 1977), for example, measured people's perceptions of their knowledge of grocery stores by asking them to rate their knowledge of a given store on a 7-point ordinal scale ranging from "totally unfamiliar" to "extremely familiar." Similarly, Hayward et al. (1980a, 1980b) asked respondents

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[1]It should be noted that the labelling of alternative responses to discriminatory test questions can affect the validity of the resulting data. Hill (1975) and Robertson (1981), for example, attempted to measure knowledge of the U.S. Forest Service's code of wilderness conduct by asking respondents if they agreed or disagreed with statements describing both recommended and discouraged types of wilderness behavior. The resulting data were really measures of respondents' attitudes toward different types of wilderness conduct rather than measures of their knowledge about the procedures recommended by the Forest Service. While these data probably reflected to some extent respondents' knowledge of the Forest Service code, this knowledge could have been more directly and validly measured by labelling the alternative responses "correct," "incorrect," and "don't know."

to place several areas of a certain park in rank order according to how knowledgeable they felt they were with each of them. The procedures essentially amount to measuring how people feel about their knowledge, rather than measuring what their knowledge actually is. As such, they are techniques for measuring perceptions rather than knowledge.

The method employed in this study to measure park knowledge was selected from the six alternatives discussed above through a process of elimination. The various unaided-recall techniques were rejected because they share the reliability problems of the unaided-recall technique for measuring awareness (discussed in the previous section). The map-sketching technique was considered especially problematic because it can confound an individual's ability to make a map with knowledge the individual might have but cannot represent in map form (Orleans, 1973, p. 129). Furthermore, there is the problem of how to systematically aggregate the individual maps so that general conclusions can be made (Milgram et al., 1972, p. 196).

Of the aided-recall techniques available, discriminatory testing was considered the most appropriate and efficient. It was recognized that with this technique respondents could obtain correct answers by guessing, but it was reasoned that this problem could be largely overcome by tactfully requesting respondents to refrain from guessing. The weaknesses and difficulties of the other aided-recall techniques were considered much more severe. The map-placement technique was considered likely to confound an individual's knowledge of parks with his or her ability to interpret a map. The

photograph-identification technique was considered problematic because respondents could state that they recognized a scene when in fact they did not. Furthermore, since the study sought to measure knowledge of a large number of parks, a large number of photographs would have been required, and this would have placed burdens on both the research budget and interviewers.

The discriminatory-testing technique was used to measure knowledge of individual parks by quizzing respondents about the location, facilities, and unique features of these parks. Knowledge of a park system was measured by simply combining the responses to the quiz questions pertaining to these individual parks. Respondents were quizzed on the locations of various parks by asking them to determine which of alternative green dots on a map represented the correct location of a given park. So that knowledge of park locations would not be overly confounded by map-reading ability, respondents who had difficulty with map interpretation were asked to provide driving directions to the various parks. The next chapter provides further details on how the quizzing procedures were designed and executed, and on how the aided-recall technique was employed to measure awareness of both individual parks and a park system.

CHAPTER III

PROCEDURES

The findings presented in this study emerged from statistical
analyses of data collected in a personal-interview survey of the
Lansing, Michigan, population. This chapter discusses the procedures
followed in conducting the survey and the analysis. The initial sec-
tions of the chapter explain why Lansing residents were selected for
study, which parks in Lansing were the subjects of questioning, how
park awareness and park knowledge were measured using the aided-
recall and discriminatory-testing techniques, and how the various
independent variables were measured. The final sections of the chap-
ter describe sampling and data-collection procedures and some general
analytical procedures.

Study Population

Legal residents of the city of Lansing, Michigan, were selected
as the study population for several reasons. A general population such
as this was chosen, rather than a population of park users, because it
was desirable to fully represent those that may not be visiting parks
due to their ignorance of them. It was recognized that such ignorance
would probably be less prevalent among park users than among the gen-
eral population. Lansing residents were also selected for study
because the city's proximity to Michigan State University permitted a

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closely supervised personal-interview survey within budgetary con-straints. The City of Lansing, moreover, supports a large and diverse park system, which permitted results to be obtained for a variety of park types.

Parks Selected for Study

Since there are over 100 parks in the Lansing park system, it was possible to study only a subset of them. A judgment sample of 19 parks was drawn, which represented much of the diversity of the entire park system in terms of location, acreage, degree of develop-ment, years of existence, visibility from passing traffic, mass-media publicity, types of visitors, and socioeconomic status of surrounding neighborhood. This sample of parks included neighborhood parks, com-munity parks, and parks with city-wide clienteles. The names and characteristics of the parks are displayed in Table 1; their locations are shown in Figure 3.

Respondents were queried about whether they had "heard of" each of the 19 parks and whether they had "ever visited" each of them. This yielded data on the awareness and visitation levels of each park. Six of the 19 parks were singled out for more in-depth study of knowledge levels, sources of information, and patterns of visitation. These six parks, hereafter termed "study parks," are described in Table 2. Each of the study parks represented a major type of urban park and served (according to the Lansing Parks and Recreation Depart-ment) a city-wide clientele. Parks with city-wide clienteles were selected for in-depth study because it was anticipated that such

Table 1.--Characteristics of the 19 parks selected for study.

Name	Acres	Percentage of Acreage Natural or Undeveloped	Years of Operation	School-Park Site	Main Attractions
Attwood Park	28.8	0	19	Yes	Basketball, ball field, play equipment
Bancroft Park	42.4	57	61	No	League diamonds, trails, sledding hill
Cavanaugh Park	25.0	59	23	Yes	Sledding hill, basketball, ball field
Comstock Park	8.2	0	47	No	League diamonds, sledding hill, basketball
Davis Park	41.8	19	11	No	League diamonds, tennis courts, trails
Fenner Arboretum	120.0	86	27	No	Nature center, trails, interpretive programs
Ferris Park	3.0	0	60	No	Ball field, basketball, play equipment
Frances Park	57.8	33	63	No	Rose garden, picnic pavillion, river overlook
Gier Park	37.2	2	36	Yes	Community center, sledding hill, league diamonds
Grand Woods	139.3	71	57	No	Community center, exercise trail, Scout camp

Table 1.--Continued.

Name	Acres	Percentage of Acreage Natural or Undeveloped	Years of Operation	School-Park Site	Main Attractions
Hunter Park	14.0	0	41	No	Swimming pool, horseshoes, tennis courts
Kingsley Place C.C.	4.6	0	7	Yes	Community center, ball field, tennis courts
Moores Park	22.9	6	73	Yes	Swimming pool, fishing, suffle-board
Munn Park	14.4	26	11	No	Basketball, play equipment, riparian land
Potter Park	98.5	32	64	No	Zoo, train ride, canoe rentals, tennis courts
Riverfront Park	20.9	37	8	No	Amphitheaters, exercise trail, tennis courts
Scott Woods	87.4	91	24	No	Mature forest, creek, trails, picnicking
Tecumseh Park	39.0	47	31	No	Ball field, basketball, tennis courts
Washington Park	45.4	44	39	No	League diamond, ice rink, tennis courts

Sources: Percentage of acreage undeveloped estimated by Strunk (1983); remainder of data from Parks and Recreation Department, City of Lansing.

Grand
Woods

Tecumseh

Gier

Ban-
croft

Comstock

$\hat{N}$

Ferris

River-
front

Scale: 1"=1.27 mi.

Kingsley

C.
B.
D.

Hunter

Lansing
City
Limits

Frances

Moores

Potter

Fenner

Washington

Scott
Woods

Cavanaugh

Davis

Munn

Attwood
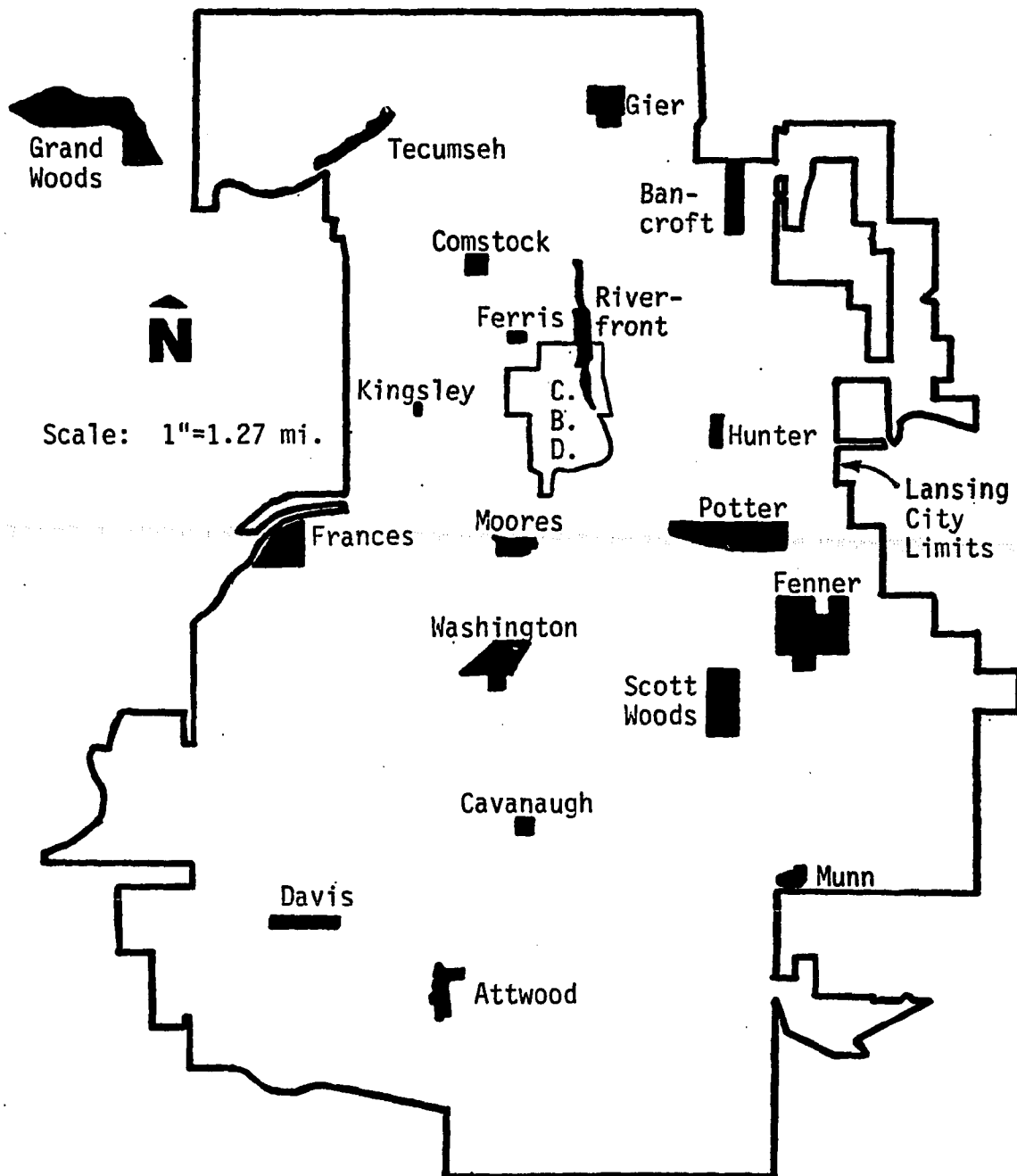
Figure 3.--Locations of the 19 parks selected for study.

Table 2.--Descriptions of study parks.

Park	Description
Fenner Arboretum	A natural area that features a trail system, nature center, picnic area, and interpretive programs. Located at the intersection of two arterial streets.
Scott Woods	A natural area that features a beech-maple forest, a creek, trails, picnic area, basketball court, and play equipment. With the exception of trails, all development is clustered in one corner of the park. Located at the termination of two dead-end residential side-streets, one of which is unpaved.
Gier Park	Features three lighted, league ball fields; a sledding hill; and a community center that provides facilities for meetings, basketball, and shuffleboard. Located just off a major highway, from which it is visible. Surrounded by a low-income residential area.
Frances Park	Features a rose garden, river overlook, picnic pavilion, and various recreation facilities. Located on a scenic drive along the Grand River. Surrounded by a high-income residential area.
Potter Park	Features a zoo, train ride, canoe rentals, tennis courts, picnic facilities, and play equipment. Located on a major thoroughfare. Receives considerable publicity from the mass media.
Riverfront Park	A relatively new park that features a board-walk along the Grand River, tennis courts, a sculpture, and two amphitheaters. Is the site of ethnic festivals, concerts, Fourth of July celebrations, union rallies, etc. Located adjacent to the central business district on major streets. Receives considerable publicity from the mass media. Accessible to downtown workers and students at Lansing Community College.

parks generally would have higher awareness levels than neighborhood parks. Parks with relatively high awareness levels were desired because this meant larger numbers of respondents who would be aware of the parks and therefore could be asked the more detailed knowledge questions. Scott Woods was selected as a study park because it is a largely undeveloped, forested area, the results for which would be compared with the other, more developed parks, particularly the other natural area (Fenner Arboretum).

Questionnaire Design

The questionnaire (Appendix C) evolved from a series of pre-tests. First, a rudimentary self-completed version of the question-naire was administered to 19 residents of the Lansing area. Based on the results of this experience, a preliminary interview schedule was developed and tested on five other area residents. Further refine-ments were then made, and a final version was tested on three addi-tional residents of the Lansing area.

As mentioned in the previous chapter, aided recall as a tech-nique for measuring park awareness was employed by asking respondents if they had heard of certain parks on a list, and discriminatory test-ing as a technique for measuring park knowledge was employed by quiz-zing respondents on the features, facilities, and locations of selected parks. The design of the list of parks and of the various quizzes is described below.

Parks List

To determine their awareness of and visitation to the 19 parks selected for study, respondents were presented with a form that listed the parks and provided spaces for them to indicate in writing whether they had "heard of" or "ever visited" each park. (See Appendix C.) It was anticipated that some respondents might confuse parks with names of parks--i.e., they might associate a name on the list with the wrong place. The questionnaire was designed to account for this possibility in three ways. First, respondents were given the option of indicating that they were "not sure" about whether they had "heard of" a given park on the list. Similarly, they were given the option of indicating that they were "not sure" about whether they had "ever visited" a given park on the list. It was hoped that respondents who suspected their own uncertainty about or confusion of certain parks and names of parks would use the "not sure" options. The "not sure" respondents could then be eliminated from estimates of awareness and visitation levels.

Second, a fictitious park name--"Hickory Park"--was added to the list. The number of respondents indicating that they had "heard of" or "ever visited" this nonexistent park provided a useful estimate of the amount of error present with the data on existing parks. It was reasoned that if errors in the data on awareness and visitation levels were inevitable, then at least the magnitude of such errors should be estimated.

Third, respondents were asked at a later point in the interview to state what they believed to be the "main attraction" at those

study parks that they reported having "heard of." If respondents
mentioned an attraction not present at the park they were asked
about, then it was obvious they were confusing this park with some
other park. Interviewers then politely informed respondents of their
error and corrected any errors in their responses to the parks list
that were related to this confusion. Confused responses to the "main
attraction" questions were encountered in only a few instances in the
field. These questions were asked only with regard to the six primary
study parks because of the need to keep the duration of interviews
within reason.

Features Quiz

After completing the parks list, respondents were quizzed on
their knowledge of 16 unique features found either in the six study
parks or three other parks included on the parks list. The quizzing
process involved describing or naming a park feature (e.g., zoo,
Sugar Bush Trail, firebell) and asking respondents to determine which
of the parks in Lansing contained it. Respondents were discouraged
from guessing.

Detailed Questions on Study Parks

After the features quiz, questioning focused on the study
parks. Questions about a given study park were asked only of respond-
ents who had indicated that they had "heard of" that park. All such
respondents were asked how they first found out about a given study
park; those who had visited a particular study park were asked when
they last visited it; those who had visited it within the last 12

months were asked to estimate the number of times they had visited it within this time period.

Next, respondents were quizzed on their knowledge of recreation facilities and park locations. Knowledge of recreation facilities was measured by quizzing respondents on whether a given study park "has" or "doesn't have" each of five recreation facilities: tennis courts, play equipment, shuffleboard courts, picnic tables, and basketball court(s). Responses to these questions were obtained by asking respondents to fill out a form. A "don't know" option was provided for each question on this form. (See Appendix C.) Respondents were discouraged from guessing.

Knowledge of park locations was measured by asking respondents to locate each study park (that they had heard of) on an 8½" x 11" generalized street map of Lanisng. The map showed the major streets and landmarks in the Lansing area. A reduced copy of the map is displayed in Appendix D. Respondents were asked to locate each of the study parks they had heard of from among 16 numbered green dots on the map. Subjects were again discouraged from guessing. Those who had difficulty with map reading were asked to provide driving directions to the park.

The basic results that emerged from the parks list, the question on how people became aware of the study parks, and the various quizzes are presented in Appendix A.

Personal Characteristics

Respondents were given a list of 20 recreation activities and were asked to indicate which, if any, they had participated in during the last 12 months. Subjects were told that their participation in a given activity could have taken place in Lansing or elsewhere. In the analysis, these data were manipulated to form several indices of the extent of respondents' involvement in certain broad classes of recreation activities. The indices formed were: the number of resource-based activities a respondent had participated in, the number of athletic activities engaged in, and the number of general activities participated in. The definitions of "resource-based," "athletic," and "general" activities, as used in this study, are presented in Table 3. Constitutive and operational definitions of other special terms employed in this study are also presented in Table 3.

Additional personal characteristics measured include: gender, race/ethnicity, age, years of residence in the Lansing area, presence of children in the household, years of education, and occupation.

Measurement of Distance

Distance variables were created in the following manner. The locations of all 19 parks studied and the addresses of all respondents were plotted on a large street map of the Lansing area. The Cartesian coordinates of these locations were then estimated using an electronic DIGITIZER. A simple FORTRAN program written by the author then used these coordinates as input to calculate the rectangular, or "Manhattan," distance from each of the respondents' homes to each of the 19 parks, according to the following formula:

Table 3.--Definitions of terms used in this study.

Term	Constitutive Definition	Operational Definition
Park Awareness	The state of being conscious of the existence of a park.	A positive response to the question, "Have you heard of this park?"
Park Knowledge	The degree to which a person who is aware of a given park knows its location and/or amenities.	One or more correct responses to items in the features, location, and/or facilities quizzes pertaining to a given study park.
Park-System Awareness	The degree to which one is conscious of the existence of all of the parks comprising a park system.	The number of parks on the parks list that have been "heard of."
Park-System Knowledge	The degree to which one knows the locations and/or amenities of all of the parks comprising a park system.	The sum of correct responses to the features, location, and facilities quizzes.
Study parks	Fenner Arboretum, Scott Woods, Gier Park, Frances Park, Potter Park, Riverfront Park	
Resource-based activities	Swimming in lakes or streams, canoeing, fishing, power boating, water-skiing, hiking, bird watching/nature photography, camping, cross-country skiing.	
Athletic activities	Softball or baseball, tennis, golf, basketball.	
General activities	Picnicking, swimming in pools, bicycling, shuffleboard, attending outdoor entertainment, ice skating, toboganning, or sledding.	
White-collar occupations	Professional/technical, managers/administrators, sales workers, and clerical workers.	
Blue-collar occupations	Craftspersons, operatives, and nonfarm laborers.	
White (with regard to race/ethnicity)	Caucasian but not Hispanic.	
Lansing area	The cities of Lansing, East Lansing, Okemos, Haslett, Holt, Dimondale, DeWitt, Bath, and Wacousta, and surrounding environs in the townships of Meridian, Delta, Delhi, Lansing, Windsor, Waterton, DeWitt, Bath, and Alaiedon.	

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$$D_{ij} = |X_i - X_j| + |Y_i - Y_j|$$

where: D_{ij} = the rectangular distance from residence i to park j

X_i = the x coordinate of residence i

X_j = the x coordinate of park j

Y_i = the y coordinate of residence i

Y_j = the y coordinate of park j

As indicated by this formula, rectangular distance is the sum of the two legs of a right triangle whose hypotenuse is the direct or airline distance between two points, in this case between a residence and a park. Rectangular distance is, therefore, always greater than airline distance. Rectangular rather than airline distances were calculated because in an urban area one usually cannot travel directly to a destination, but must follow existing thoroughfares, which are typically laid out in a rectangular pattern. (Even if one's route involves not just two but many "legs," the sum of these legs is mathematically equal to the sum of the two legs of the right triangle.) The use of rectangular distance was particularly appropriate for this study, since most of the streets in Lansing are laid out in a grid-type pattern.

Sampling Procedures

Stynes (1982) found a negative relationship between awareness of Ingham County, Michigan, parks and distance from these parks to respondents' homes. Visitation to these parks was also found to be negatively related to distance. Both awareness and visitation were

expected to be similarly related to distance in the case of Lansing's parks. Consequently, it was considered important that individuals living both close to and far from a given park be adequately represented in the sample. The sample was therefore stratified by geographic area. Geographic stratification also helped ensure that residents of the various socioeconomic, racial, and ethnic neighborhoods in the city would be adequately represented in the sample.

Geographic strata, or areas, were formulated by dividing up the city such that all portions of a given stratum would be roughly the same distance from each of the study parks. Thus strata that would have included large numbers of respondents who lived very close to a study park but others who lived very far from it were avoided. This procedure was an attempt to ensure rough homogeneity within each stratum in terms of distance to each of the study parks. Such homogeneity was desirable to facilitate comparisons of the various strata in terms of their awareness and knowledge of parks. Thus each stratum either wholly surrounded one or more of the study parks or did not contain any of the study parks. Each stratum consisted of two or more 1980 Census tracts, with two exceptions in which elongated tracts were divided among two strata. The strata are defined in Table 4 and displayed in Figure 4.

The strata constituting the northern and central portions of the city (1 through 7) were slightly oversampled, and the strata constituting the southern portion of the city (8 and 9) were undersampled. The southern strata were sampled at half the rate at which

Table 4.--Definitions and populations of geographic strata.

Stratum	Census Tracts Comprising Stratum	1980 Population of Stratum	Percentage of 1980 Lansing Population (N=130,414)	Achieved Sample Size
1	33.01; 33.02	6,178	4.74	12
2	1; Portion of 2; 3; 32	8,810	6.76	16
3	4; 15; 16	7,522	5.77	14
4	5; 6; 7; 8; 11; Portion of 13; 14; Portion of 2	17,817	13.66	33
5	9; 10; 30; Portion of 38.01; Portion of 31.02	8,680	6.66	16
6	17.01; 17.02; 24; 25	11,789	9.04	22
7	19; 12; 20; 21; 22; 23; 26; 29.01; 29.02; Portion of 13	24,365	18.68	45
8	202.2; 36.01; 36.02; 37; 51; 52	29,739	22.80	29
9	27; 28; Portion of 53.02; 53.03; 53.04	15,514	11.89	14
Totals		130,414	100.00	201
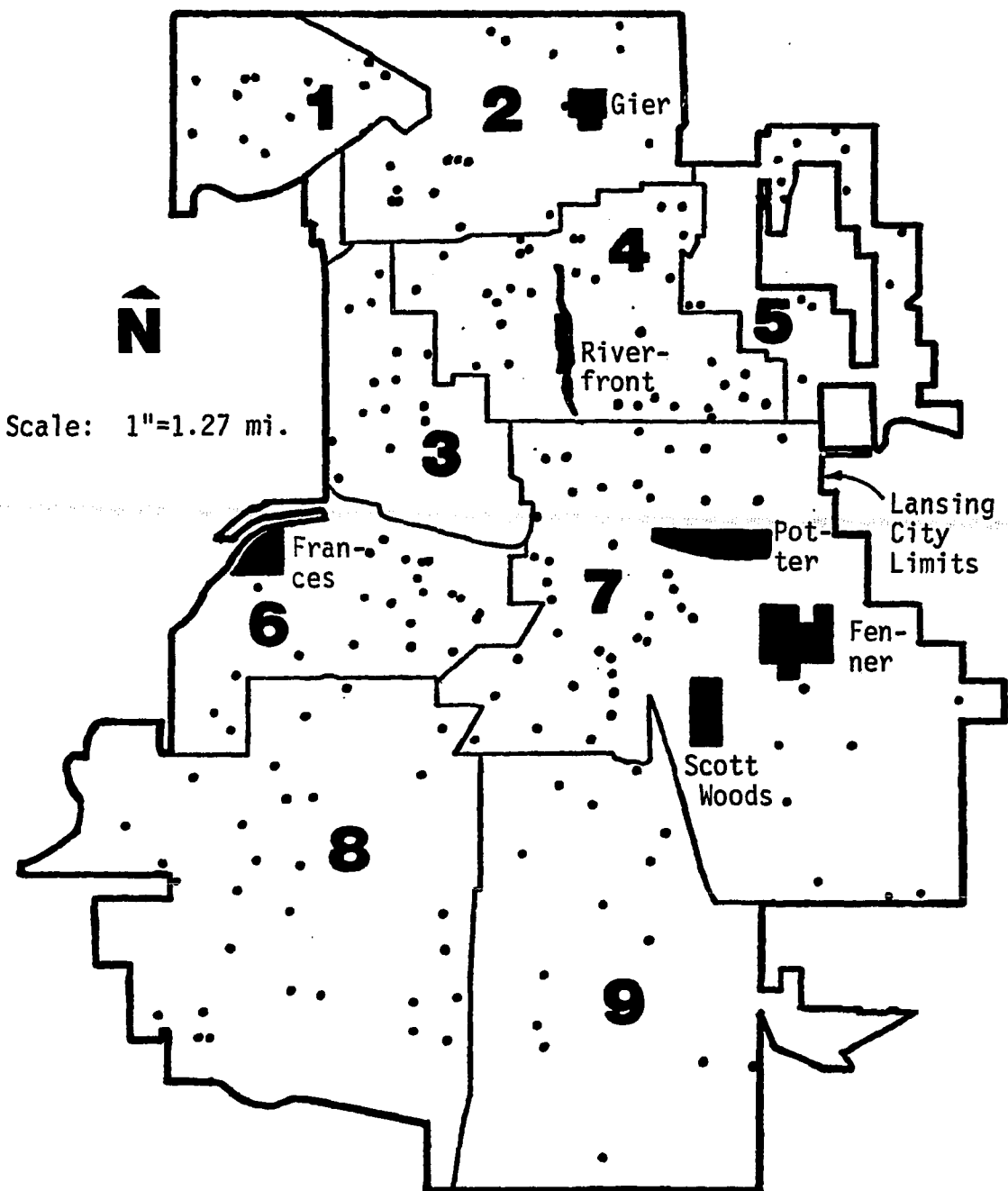
Figure 4.--Geographic strata and locations of respondents'
residences.

the remainder of the city was sampled. Weights were used in the analysis to compensate for this sampling scheme.

The purpose for sampling the various strata at different rates was to further ensure that the sample would be balanced geographically, i.e., that it would adequately represent both people living close to and far from each of the study parks. Since these parks are located in the northern and central portions of the city, sampling the southern strata at the normal rate would have resulted in a sample that contained relatively large numbers of people who lived far from the study parks, and relatively few people who lived close to the study parks. This can be easily seen if one visualizes concentric distance bands drawn around a given park. The more remote bands have larger areas than the less remote bands, and consequently are likely to contain more people. Thus people living in these remote distance bands are more likely to be included in a random sample. Sampling the southern strata at a lower rate ensured that the sample would not be composed largely of people who lived far from the study parks.

Budgetary limitations and the inherent costliness of a personal-interview survey dictated that the sample size be limited to about 200 respondents. This was considered the minimum size necessary to permit meaningful analysis. The stratification procedure increased the likelihood that this relatively small sample would adequately capture the variation of the population on relevant variables.

It was assumed that interviews could be secured from only about 80% of the households contacted. This called for a designated

sample size of 250, which would presumably yield an achieved sample size of 200. To determine the number of designated households that should fall into each stratum, the population of each stratum was estimated from 1980 Census data and then multiplied by a sampling fraction calculated according to the following formula:

$$\text{Sampling fraction} = \frac{250}{\sum_{i=1}^{7} x_i + \frac{1}{2} \sum_{j=8}^{9} y_j}$$

where: x_i = population of northern stratum i

y_j = population of southern stratum (8 or 9) j

Only half the population of the two southern strata were multiplied by the resulting sampling fraction so that households in these strata would be sampled at only half the rate at which the remainder of the city was sampled.

The sampling frame was the most recent edition of the Lansing City Directory, published by R. L. Polk and Company (1981).[2] Of course, this directory was not organized according to the geographic subdivisions developed for this study, which would have permitted separate subsamples of appropriate sizes to be drawn from each geographic stratum. Consequently, the following procedure was adopted to yield a geographically stratified sample. Beginning with a random start, a systematic sample of 310 occupied, nonbusiness addresses was drawn from the address section of the directory. The location

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[2]The use of Polk directories in sampling is suggested by Sudman (1976, p. 58) and Kish (1965, p. 352). The directory for Lansing is annually updated.

of each household selected was consecutively plotted on a large street map of Lansing with stratum boundaries drawn in. Households falling on boundary streets were deleted from the sample. After the desired number of households in each stratum was reached, any additional addresses located in these strata were also deleted. This procedure was continued until each stratum had the desired number of households. The resulting 250 addresses constituted the designated sample. The plots of the 250 addresses on the street map revealed that the sample had a satisfactory spatial distribution, including households in each of the city's major neighborhoods.

The number of interviews desired in each stratum was calculated using the same formula used to calculate the number of designated households except the constant in the numerator was changed from 250 to 200. Interviewing in a given stratum continued until this desired number was reached.

In the course of interviewing, it became evident that response rates were not evenly distributed throughout the city and that the designated sample needed to be expanded in strata 1, 2, and 3. Consequently, ten of the extra addresses previously deleted from the sample were returned to it, yielding a final designated sample size of 260.

Of the 260 addresses in the final designated sample, 243 were found to exist and to be occupied. Interviews were obtained from 189 (78%) of these 243 households, refusals were encountered in 18% of them, and 4% did not have an eligible person at home after at least three attempts to obtain an interview (Table 5). Twelve additional

interviews were conducted in alternative households that were not included in the designated sample, resulting in a final sample size of 201 respondents. The locations of the 201 respondents' residences are displayed in Figure 4.

Table 5.--Breakdown of designated sample.

	N	Percentage of Entire Designated Sample (260)	Percentage of Existing, Occupied Addresses (243)
Successfully interviewed[a]	189	72.7%	77.8%
Refusal	44	16.9	18.1
Not at home	10	3.8	4.1
Vacant[b]	9	3.5	...
No such address[c]	8	3.1	...
Totals	260	100.0%	100.0%

[a]Does not include the 12 respondents interviewed at nondesignated addresses. Total completed interviews = 201.

[b]Households that were occupied according to the Polk Directory but were found to be vacant. Households listed as vacant in the Polk Directory were considered ineligible for inclusion in the designated sample.

[c]Includes incorrect street numbers and buildings that had been razed.

The twelve alternative households were either adjacent to or directly across the street from designated households that were found to be vacant, to have no one at home after at least three attempts,

or to be occupied by someone who refused to be interviewed. Inter-
viewers were instructed to contact these nearby homes as a means of
increasing the efficiency of interviewing once it became clear that
the interviewing process was becoming unacceptably expensive. The
bias resulting from this procedure was considered to be negligible
because (1) the number of interviews secured in this manner was small
relative to the overall sample; (2) the individuals interviewed in
this way were likely to possess characteristics similar to the
residents of designated households because of the proximity of their
dwellings; (3) alternative addresses (with one exception) were con-
tacted only in strata 4 and 7, both of which had relatively large
sample sizes and were slightly oversampled; and (4) comparisons of
sample data with Census figures indicated that at least in terms of
demographic characteristics, the overall sample--including the respond-
ents from these 12 nondesignated households--was generally representa-
tive of the Lansing population (Table 6).

The 12 alternative addresses were ignored in calculating the
response rate reported in Table 5. However, since the number of
respondents from alternative addresses was small, the overall response
rate for the study was considered about the same as that reported in
Table 5--78%.

Children under 15 years of age were excluded from the study.
Due to budgetary constraints, interviewers selected respondents within
households according to a predetermined quota procedure rather than
through a random-selection procedure. The latter procedure would
have required numerous costly and time-consuming call-backs to obtain

Table 6.--Comparisons of demographic characteristics of the sample
with Census figures.

Characteristic	Weighted Sample N=201	1980 Census[a] (Persons Age 15 and Older Only) N=98,819
GENDER		
Male	47%	47%
Female	53	53
Totals	100%	100%
RACE		
White	83%	83%
Black	17	12
Other	0	5
Totals	100%	100%
PERSONS OF SPANISH ORIGIN[b]	4%	5%
AGE		
15-24	19%	28%
25-34	25	27
35-44	15	12
45-54	12	11
55-64	13	10
65-74	10	7
75-84	4	4
85+	2	1
Totals	100%	100%

[a]Source: Bureau of the Census, 1980 Census of Population: General
Population Characteristics, Part 24--Michigan. PC80-1-
B24. August 1982, p. 93.

[b]Persons of Spanish origin may be of any race.

interviews from randomly selected household members who were diffi-
cult to find at home.

The quota procedure involved selecting respondents within
households according to priorities based on the anticipated diffi-
culty of finding certain types of people at home. Male heads of
households were the top priority, followed by female heads of house-
holds, other males, and finally other females. This procedure, of
course, yielded a sample that was not fully random. However, empiri-
cal evidence (Stephenson, 1979; Sudman, 1966) suggests that sub-
stantive results are largely unaffected by probability sampling with
quotas as compared to full probability sampling.

The character of the sample can be summarized as a systematic,
single-unit, geographically stratified, single-stage, random sample
with unequal unit probabilities and respondents within households
selected according to quotas. The sample was assumed to be a simple
random sample in all analyses.

Data Collection and Preparation

Personal interviews were considered a more appropriate mode
of administration than telephone interviews or mailed questionnaires
because this (1) facilitated the collection of a large amount of
data, (2) prevented respondents from obtaining answers to quiz ques-
tions from other individuals or from materials such as city maps,
(3) allowed confusion between parks and names of parks to be readily
cleared up, (4) helped create and maintain interest in a subject that

was not salient to many respondents, and (5) permitted the use of visual aids such as the map used in the location quiz.

An advance letter was sent to the members of all households in the designated sample to inform them that their household had been selected at random and that they would be visited by an interviewer. (See Appendix E.) The author conducted 64% of the interviews and interviewed in each of the nine strata. The remaining interviews were conducted by three other graduate students. These students were informed of the objectives of each question and were trained through the use of mock interviews. Interviewers who were not knowl-edgeable about certain of the study parks were taken to them and familiarized with their locations, facilities, and features. Inter-viewing took place from July 23 to October 13, 1981, between the hours of 10:00 a.m. and 10:00 p.m., and on all days of the week.

Questionnaire responses were coded and then professionally key-punched and machine verified. A listing of the resulting data was checked against each of the responses recorded in each of the 201 questionnaires. Coding and key-punching errors were identified and removed.

The distances calculated in the FORTRAN program described above were automatically punched on cards by the computer. These cards were then combined with the manually punched cards to form the computer file used in the analysis.

General Analytical Procedures

The analysis was performed using the Statistical Package for the Social Sciences (Nie et al., 1975) on the Cyber 750 computer at Michigan State University. A statistical significance level of .05 was used throughout the analysis. Statistically significant results are marked with an asterisk (*).

The data in all analyses were weighted in order to compensate for undersampling the southern portion of the city. The weight for respondents residing in the southern sectors was 1.648; the weight for other respondents was 0.824.[3] In tables, statistics calculated from subsamples of fewer than 20 respondents and which therefore should be interpreted with caution are placed in parentheses. In contingency-table analyses, the chi-square statistic is reported only if the average expected frequency of the table meets or exceeds the minimum values recommended in an empirical study by Roscoe and Byars (1971, p. 759).

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[3]There was little difference in the results produced by weighted versus unweighted data. The absolute frequency counts for weighted versus unweighted data generally did not differ by more than 5 and never differed by more than 14.

CHAPTER IV

CONSTRUCTION AND ASSESSMENT OF FAMILIARITY MEASURES

The previous chapter described the various questionnaire
items that were developed to employ the aided-recall and discriminatory-
testing techniques. This chapter will describe how these items were
combined to form the scales used in the analyses reported in suc-
ceeding chapters. This chapter will also discuss the scales' fre-
quency distributions and the extent to which these scales possess
the properties of reliability and validity. The reproducibility
of the knowledge scales for the individual study parks will also
be examined.[1]

It was necessary to assess the measurement properties of the
various scales because these properties were unknown, this being the
first attempt to measure park familiarity using these particular
types of scales. The results of this assessment will be discussed in
detail because the credibility and interpretability of the analyses
presented in subsequent chapters depend on the quality and character-
istics of these scales.

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[1]The reproducibility of the measures of park-system awareness
and park-system knowledge was not assessed because these measures
included more items than could be handled in SPSS's GUTTMAN SCALE
procedure.

The analyses involving the measures of park-system awareness and park-system knowledge included all respondents in the sample (N=201). Each analysis involving the knowledge scales of a particular study park, however, excluded those respondents who were unaware of that park, in keeping with the definition of park knowledge as a quality possessed only by individuals aware of a given park.

The construction and assessment of individual park-knowledge scales will be discussed first. This will be followed by a discussion of the construction and assessment of the measures of park-system awareness and park-system knowledge.

Individual Park-Knowledge Scales

Construction

The knowledge scale for a given study park consisted of all the quiz items pertaining to that park. The items that constituted each scale are displayed in Table 7. Each scale included items that assessed whether a respondent correctly identified the location of the park, the presence or absence of five recreation facilities, and the presence of one or more unique features of the park. Respondents were assigned scores on a given scale by summing the number of items they correctly answered. Thus respondents who correctly answered all seven of the items in the Scott Woods scale received a score of 7 on this scale; respondents who were familiar with only the location of and ballfield at Gier Park received a score of 2 on the Gier Park scale, etc.

Table 7.--Items comprising individual park-knowledge scales.

Trait Measured by Item	Fenner Arboretum	Scott Woods	Gier Park	Frances Park	Potter Park	Riverfront Park
Knowledge of park's location	1. Location	1. Location	1. Location	1. Location	1. Location	1. Location
Knowledge of whether park has or doesn't have each of these recreation facilities	2. Tennis courts 3. Play equipment 4. Shuffleboard courts 5. Picnic tables 6. Basketball court(s)	2. Tennis courts 3. Play equipment 4. Shuffleboard courts 5. Picnic tables 6. Basketball court(s)	2. Tennis courts 3. Play equipment 4. Shuffleboard courts 5. Picnic tables 6. Basketball court(s)	2. Tennis courts 3. Play equipment 4. Shuffleboard courts 5. Picnic tables 6. Basketball court(s)	2. Tennis courts 3. Play equipment 4. Shuffleboard courts 5. Picnic tables 6. Basketball court(s)	2. Tennis courts 3. Play equipment 4. Shuffleboard courts 5. Picnic tables 6. Basketball court(s)
Knowledge of the presence of these features in the park	7. Nature center 8. Sugar bush trail 9. Indian garden 10. Firebell	7. Small creek crossed by foot bridges	7. Three lighted ball fields	7. Rose garden	7. Zoo 8. Train ride 9. Canoes that you can rent	7. Sunbowl Amphitheater 8. Saltshed Amphitheater 9. Metal sculpture of an eagle called "The Windlord"

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All possible items relating to knowledge of a given park were included in the respective scales because several advantages accrue from maximizing the length of a scale. First, a longer scale minimizes the number of ties and thus yields a stronger ordinal scale. Second, a longer scale is always more reliable than a shorter one because with more items it is more likely that the random errors associated with each item will cancel each other out (Magnusson, 1967, p. 68). And third, a longer scale is more likely to possess a high degree of content validity than a shorter scale because there is greater assurance that all fundamental aspects of the mental domain under investigation are represented in the scale.[2]

Frequency Distributions

The frequency distributions of the six scales are displayed in Figure 5. The distributions for Frances, Potter, and Riverfront Parks gradually rise to a peak and then decline--either gradually, as with Riverfront Park, or suddenly, as with Frances and Potter Parks. In contrast, the distributions for Gier Park and Scott Woods involve large proportions of respondents with low levels of knowledge and progressively lower proportions with higher levels of knowledge. Thus most of the people who were aware of Frances, Potter, or River-front Parks were moderately knowledgeable about these parks, whereas most of those who were aware of Gier Park or Scott Woods had low

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[2]The fact that the six scales were of different lengths did not preclude a comparison of results across parks in subsequent analyses since the focus of these analyses was on people's knowledgeability relative to others in the sample rather than on their knowledgeability in an absolute sense.
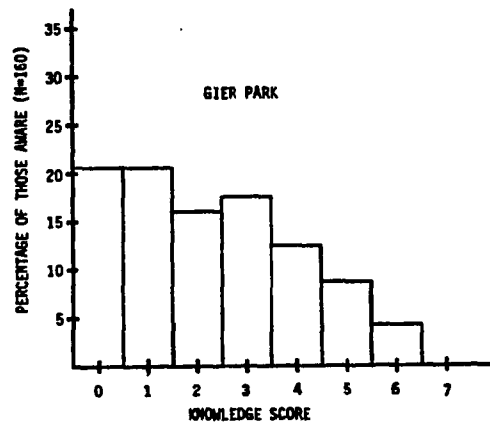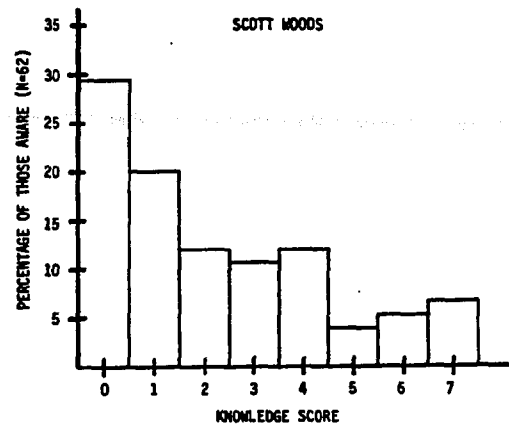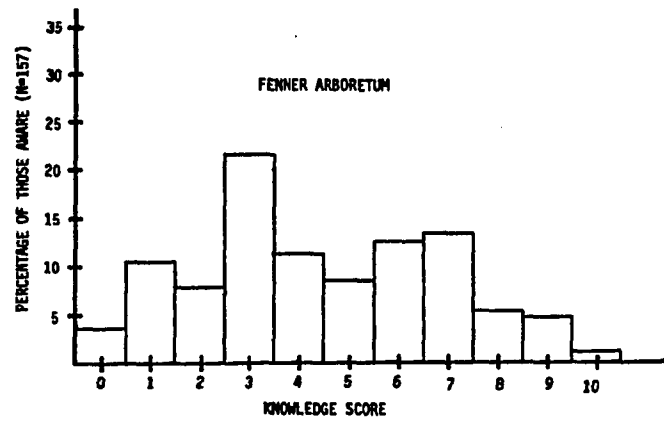
Figure 5.--Frequency distributions of individual park-knowledge scales.
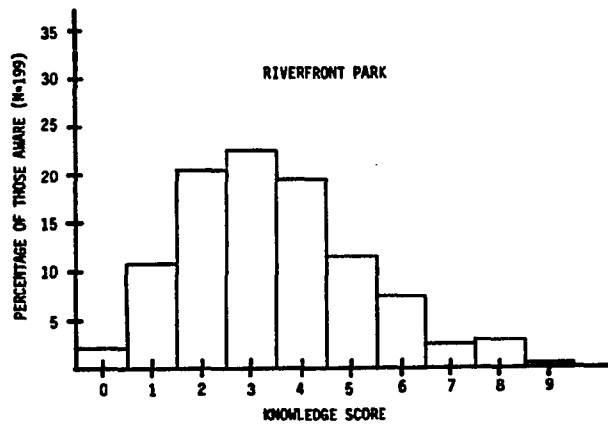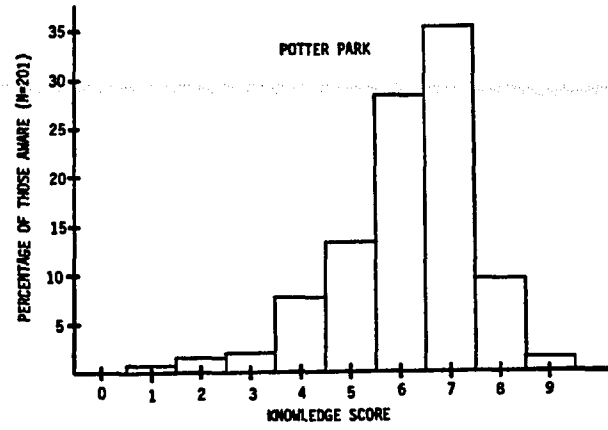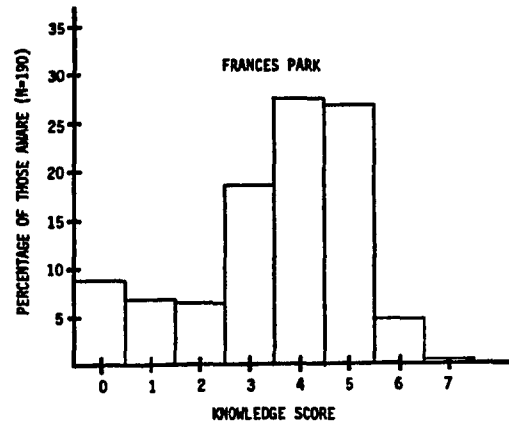
Figure 5.--Continued.

levels of knowledge about these parks. The distribution for Fenner Arboretum has the least recognizable pattern and appears to be almost bimodal.

Figure 5 also reveals that some individuals were aware of certain parks but had no knowledge of their locations or amenities: In the case of all parks except Potter, some respondents received a score of 0, which denotes that they were aware of the park but failed all of the quiz items relating to the park's location, facilities, and features. In the case of Potter Park, no individuals received a score of 0. Thus the entire sample was not only aware of the existence of Potter Park but also had at least some knowledge of it.

The knowledge scales, constructed by using the procedures described above, are ordinal scales. Magnusson (1967, p. 13) describes a technique whereby an ordinal scale can be converted to an interval scale if the phenomenon being measured can be assumed to be normally distributed in the population. Interval scales are desirable because they permit more powerful analysis than ordinal scales. Chi-square goodness-of-fit tests were conducted on the sample frequency distributions for each park to determine if knowledge of any of the parks could be assumed to be normally distributed in the population. The results of these tests were negative for each park, so the technique Magnusson describes was not employed.

Reliability

Reliability refers to the degree of random error in a measurement. There are three aspects of the concept of reliability:

precision, stability, and internal consistency (Magnusson, 1967,

p. 119). Precision refers to consistency in the results of equivalent

instruments administered to the same individuals at the same time;

stability refers to consistency in the results of repeated administra-

tions of the same instrument to the same individuals; and internal

consistency refers to consistency in individuals' responses to the

various items of a measure. The particular aspect of reliability with

which one is concerned determines which of the various coefficients

should be calculated. The concern here was with the scales' precision.

To have assessed stability would have required another survey; and to

have assessed internal consistency, or homogeneity, would have been of

little value since the knowledge tests are inherently heterogeneous.[3]

The matched split-half method is appropriate for estimating

the precision of a heterogeneous test (Magnusson, 1967, p. 119). The

knowledge items for each of the six parks were divided into two halves

such that the resulting halves were as similar as possible in terms

of both difficulty and content.[4] Spearman-Brown split-half reliability

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[3]Respondents were quizzed on a wide variety of aspects of park
knowledge. Knowledge of certain aspects of the park was found to be
not always highly correlated with knowledge of other aspects of the
park, possibly owing to differences in a given respondent's recrea-
tional interests and sources of information about parks. Measures of
homogeneity, including the widely used "Cronbach's alpha," would merely
have reflected these low inter-item correlations in low coefficients.
Yet low homogeneity in a measure designed to predict a heterogeneous
phenomenon like park knowledge does not necessarily represent error
(Anastasi, 1976, p. 117; Selltiz et al., 1976, p. 197).

[4]A factor analysis of knowledge items was employed to assist
in dividing the various items into two halves. If two items each
loaded strongly on a given factor, one item was placed in one of the
halves and the other item in the other half.

coefficients were then calculated. In absolute terms, the reliability coefficients of the scales for Fenner Arboretum (0.848) and Scott Woods (0.870) were fairly high, while those for the other parks were lower, especially those for Gier Park (0.685) and Potter Park (0.628) (Table 8).

Table 8.--Results of matched split-half reliability analyses.

	Fenner Arboretum N=157	Scott Woods N=62	Gier Park N=160	Frances Park N=190	Potter Park N=201	Riverfront Park N=199
Means						
Part 1	2.23	1.19	1.11	1.75	2.86	1.69
Part 2	2.17	1.04	1.11	1.75	3.28	1.75
Variances						
Part 1	1.95	1.59	1.44	1.03	0.56	1.30
Part 2	1.59	1.18	0.66	0.75	0.79	0.80
Spearman-Brown Reliability Coef.	.848	.870	.685	.699	.628	.725

The low reliability coefficients for the developed parks reflect the fact that there was relatively less variation in the knowledge scores for these parks compared to the scores for the natural areas. The more homogeneous a group is with respect to the characteristic being measured, the more difficult it is to obtain high reliability coefficients. This is because slight random errors in individual scores may lead to changes in relative position in a group where the scores of many individuals are close to one another, whereas the same errors may not lead to changes in relative position

in a group where individuals differ markedly from one another (Selltiz et al., 1959, p. 181). Thus the results did not necessarily mean that some scales had more random error than others, but rather that the existence of random error was more problematic with the low-variance scales than with the high-variance scales. Future efforts to construct park-knowledge scales should attempt to maximize their reliability by including more items in them.

The park-knowledge scales were used in subsequent analyses as measures of the knowledge of a given individual relative to that of other people aware of a given park. The low reliability coefficients for the low-variance scales suggest that the relative positions of some respondents were affected to some degree by random errors. In view of this, it was appropriate to attempt to make only crude rather than fine distinctions among people's levels of knowledge: Characterizing a respondent's knowledgeability as high, medium, or low was more likely to be correct than characterizing it as a specific score. Consequently, individuals were divided into high, medium, and low knowledge groups in most of the analyses reported in this and succeeding chapters.

Validity

The concept of validity is concerned with whether a measure measures what it purports to measure. There are three basic types of validity: content validity, construct validity, and criterion-related validity. Criterion-related validity is evaluated by checking performance on a test against some criterion that is a direct

and independent measure of the phenomenon the test is designed to predict (Anastasi, 1976, p. 140). Since appropriate criteria were not available in this situation, only content and construct validity were assessed.

Content Validity

Content validity refers to the degree to which the items of a scale solely and adequately represent the content of the mental domain being investigated. It is usually evaluated on a subjective basis as (1) the degree to which the content of each item pertains to the phenomenon being measured, and (2) the degree to which the set of items represents all aspects of the phenomenon (Shaw & Wright, 1967, p. 18).

It can be said that the various knowledge scales possessed content validity. The items in each scale pertained only to knowledge of that park as opposed to use of it or to some other phenomenon. And the set of items constituting each scale represented most of the important aspects of park knowledge, including familiarity with a given park's location, features, and facilities. The items in the scales, moreover, assessed familiarity with park amenities found both on the perimeters and in the interiors of the parks. Perhaps most importantly, each scale included items that assessed familiarity with the park's important attractions: the nature center at Fenner Arboretum, the rose garden at Frances Park, the lighted ball fields at Gier Park, the creek at Scott Woods, etc. These scales would clearly have lacked content validity had they not assessed familiarity with the

attractions that contributed most significantly to the essential character of each park.

Construct Validity

Construct validity refers to the extent to which a particular measure relates to other measures in a manner that is consistent with theoretically derived hypotheses concerning the concepts that are being measured (Carmines & Zeller, 1979, p. 23). The hypotheses generated to test construct validity can be derived from logical expectations as well as from formal theories (Cronbach & Meehl, 1955, p. 284). A common method of estimating construct validity is the known-groups technique. If our understanding of a construct leads us to expect two or more groups to differ on a test, it follows that a valid scale to measure the construct should yield different scores for these groups. Thus Thurstone and Chave (1929, p. 73) validated a scale for measuring attitudes toward "the church" by demonstrating score differences between those who attended church frequently and those who did not. In the case of park knowledge, it was reasonable to expect people who had visited a park to have greater knowledge than those who had not, because of the opportunity for direct observation of the park's contents. Individuals who had never visited a park, however, were expected to have obtained some knowledge of it from the media, from other people, and/or from driving or walking by it.

Contingency-table analyses were conducted to test this hypothesis. The knowledge distributions for each park were divided into three

groups using cutoff points as close to the 25th and 75th percentiles as possible.[5] Scores falling roughly in the upper 25% of a given distribution represented "low knowledge"; scores falling roughly in the upper 25% of a given distribution represented "high knowledge"; and scores falling between these extremes represented "medium knowledge." The proportions of visitors and nonvisitors falling into these three groups are compared in Table 9. Nonvisitors were defined as individuals who indicated either that they had never visited a given park or that they were "not sure."

The results indicated, in the case of each park, that nonvisitors were much more likely to have low knowledge than visitors, and visitors were much more likely to have high knowledge than nonvisitors.[6] (Sample-size limitations made comparisons of percentages problematic in the case of Potter Park, but the overall relationship was in the expected direction and was statistically significant.) Thus there was empirical support for the hypothesized relationships between park knowledge and park visitation, and evidence that the scales possessed construct validity. It is doubtful these relationships would have emerged if the scales measured a phenomenon other than park knowledge or if the scales were overly influenced by guessing.

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[5]The basis for subdividing the knowledge distributions in this manner is explained in the next chapter.

[6]These results were consistent with the findings by McDonald (1969) and Hammitt (1981) that were discussed in Chapter I.

Table 9.--Knowledge of study parks by whether parks had ever been visited.

Park	Knowledge Level	All Aware Subjects	Ever Visited Park		Chi-Square	Sig.
			No	Yes		
Fenner Arboretum	Low	N=157 22%	N=22 67%	N=134 15%		
	Medium	54	33	57		
	High	24	0	28	31.57	.000*
		100%	100%	100%		
Scott Woods	Low	N=62 29%	N=26 61%	N=36 7%		
	Medium	43	39	45		
	High	28	0	48	27.50	.000*
		100%	100%	100%		
Gier Park	Low	N=160 21%	N=42 55%	N=118 9%		
	Medium	54	45	57		
	High	25	0	34	47.74	.000*
		100%	100%	100%		
Frances Park	Low	N=190 22%	N=18 (91%)	N=172 15%		
	Medium	46	(9)	50		
	High	32	(0)	35	55.31	.000*
		100%	100%	100%		
Potter Park	Low	N=201 25%	N=4 (100%)	N=197 24%		
	Medium	64	(0)	65		
	High	11	(0)	11	12.34	.002*
		100%	100%	100%		
Riverfront Park	Low	N=199 33%	N=33 78%	N=166 24%		
	Medium	42	20	46		
	High	25	2	30	35.85	.000*
		100%	100%	100%		

Reproducibility

Reproducibility is a useful but nonessential property of scales. A scale is said to possess reproducibility if all of a sample's responses to a set of items can be reproduced solely on the basis of their total scores. Reproducibility implies that a scale's items can be ordered by degree of difficulty and that respondents who correctly answer a difficult item will correctly answer all less difficult items. It also implies that respondents who fail an easy item will always fail all of the more difficult items. A five-item knowledge scale with perfect reproducibility would display the pattern of responses shown below, where "1" indicates passing an item and "0" indicates failing an item:

A HYPOTHETICAL KNOWLEDGE SCALE WITH PERFECT REPRODUCIBILITY

Knowledge Score (Sum of Correct Answers)	Most Difficult Item A	KNOWLEDGE ITEMS			Least Difficult Item E
		B	C	D	
5	1	1	1	1	1
4	0	1	1	1	1
3	0	0	1	1	1
2	0	0	0	1	1
1	0	0	0	0	1
0	0	0	0	0	0

Scalogram analysis, or Guttman scaling, is a technique that assesses the degree to which the responses to a scale's items conform to this perfect pattern. Scales that closely approximate this pattern are said to be cumulative scales. Although scalogram analysis had been used as a method of constructing attitude scales, Edwards (1957, p. 172) argued that scalogram analysis could perhaps be most accurately described as a process by which it is determined whether a series of items and a sample of subjects conform to a specified set of criteria designated as the requirements of a Guttman scale. It is this hypothesis-testing function of scalogram analysis that was employed in this study.

It was anticipated that the discovery of a cumulative structure in park-knowledge scales would help simplify future efforts to measure this phenomenon: If park knowledge is cumulative, then certain types of items, with very few exceptions, will be passed only by individuals who pass all other knowledge items. Thus "high knowledge" of a park could simply be measured as the ability to pass this type of knowledge item. It was hypothesized that items testing knowledge of features and facilities located in park interiors would possess this property.

The criteria used to evaluate conformity to a perfect cumulative pattern were a coefficient of reproducibility of a least 0.90, and a coefficient of scalability of at least 0.60 (McIver & Carmines, 1981). Using these standards, it was concluded that none of the

scales were cumulative (Table 10).[7] This implies that, in the case

of each scale, a given score was obtained through many combinations

of correct and incorrect responses to a given scale's items. If the

scales had been cumulative, on the other hand, a given score on a

given scale (with very few exceptions) would have been obtained

through only one combination of correct and incorrect responses.

It was hypothesized that a cumulative response pattern was

not emerging because the sample for each park included individuals

who had never visited that park. Such individuals, having learned

of certain park facilities and features through interpersonal com-

munication and the mass media, might have been able to pass difficult

items without also having been able to pass the less difficult items.

Visitors able to pass difficult items, on the other hand, would pre-

sumably have been able also to pass the easier items as a result of

having actually observed the features or facilities these items rep-

resented. But when nonvisitors were excluded from the samples, the

analyses yielded coefficients of reproducibility and scalability that

were actually somewhat lower than those of the previous set of

analyses.

It was further hypothesized that a cumulative response pattern

existed among items testing knowledge of locations, features, and the

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[7]The coefficient of reproducibility can be spuriously high.
To be meaningful, it must exceed the minimum marginal reproducibility
sufficiently to be reflected in a coefficient of scalability of at
least 0.60. Therefore, in view of the relatively low coefficients
of scalability reported in Table 10, the relatively high coefficients
of reproducibility do not indicate that the scales approximated a cumu-
lative structure.

Table 10.--Results of scalogram analyses performed on respondents aware of a given park.

Statistic	Fenner Arboretum N=157	Scott Woods N=62	Gier Park N=160	Frances Park N=190	Potter Park N=201	Riverfront Park N=199
Coefficient of reproducibility	.86	.85	.84	.86	.87	.78
Coefficient of scalability	.49	.54	.44	.34	.29	.17
Minimum marginal reproducibility	.72	.68	.72	.78	.82	.74
Percent improvement	.14	.17	.12	.07	.05	.04

presence of recreation facilities; but the inclusion in the analysis

of items testing knowledge of the absence of certain recreation

facilities masked this pattern. Under this hypothesis it was expected

that knowledge of the obscure features or facilities in the park would

nearly always be associated with knowledge of the more obvious features

or facilities in the park. Subsequent analysis, however, revealed

there was no support for this hypothesis, either among visitors and

nonvisitors to a given park or among only visitors.

The lack of reproducibility evident from each set of analysis

suggests that park knowledge is a complex phenomenon. The complexity

of park knowledge may result from its important relationship with park

visitation (Table 9), a complex behavior that varies with recrea-

tional preferences and personal characteristics. More specifically,

the noncumulative nature of park knowledge may be the result of

respondents (1) having more keenly observed and/or better remembered

those park features or facilities that were of interest to them,

(2) having learned of the less obvious park features or facilities

while remaining ignorant of the more obvious features or facilities

because of the freedom of movement possible in urban parks, (3) having

gained knowledge from mass media and interpersonal communication in

addition to actual observation, etc.

Scales for the Measurement of Park-System Familiarity

Construction

The scale used to measure park-system awareness consisted of

those questionnaire items that measured respondents' awareness of

the various parks listed on the park list. Respondents were assigned scores on this scale by summing the number of parks on the list that they reported having "heard of." "Not sure" responses were not included in these summations.

The scale used to measure park-system knowledge consisted of all of the items constituting the features quiz, the facilities quiz, and the locations quiz. Respondents were assigned scores on this scale by summing the number of items in these quizzes that they correctly answered.

Frequency Distributions

The frequency distributions of the measures of park-system awareness and knowledge are displayed in Figure 6. Both distributions are approximately normal. Thus most respondents possessed a moderate level of awareness and knowledge of the park system, as estimated by these measures.

On the average, respondents had heard of 11.2 of the 19 parks. All respondents indicated they had heard of at least two of the parks on the list. Four respondents indicated that they had heard of all 19 parks.

The sample correctly answered an average of 20.2 of the 52 quiz items. The scores for the knowledge measure ranged from a low of 3 to a high of 40.
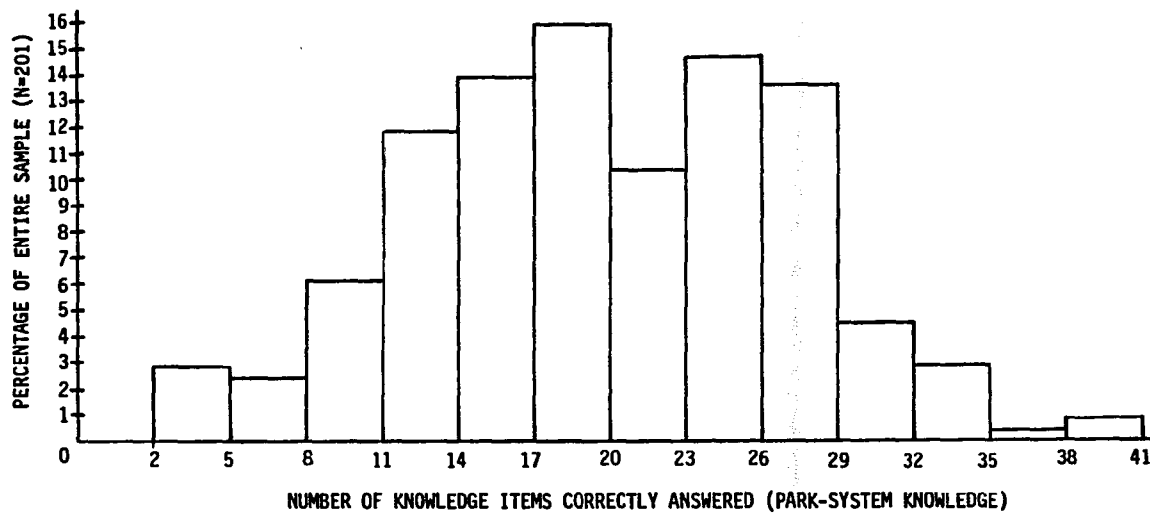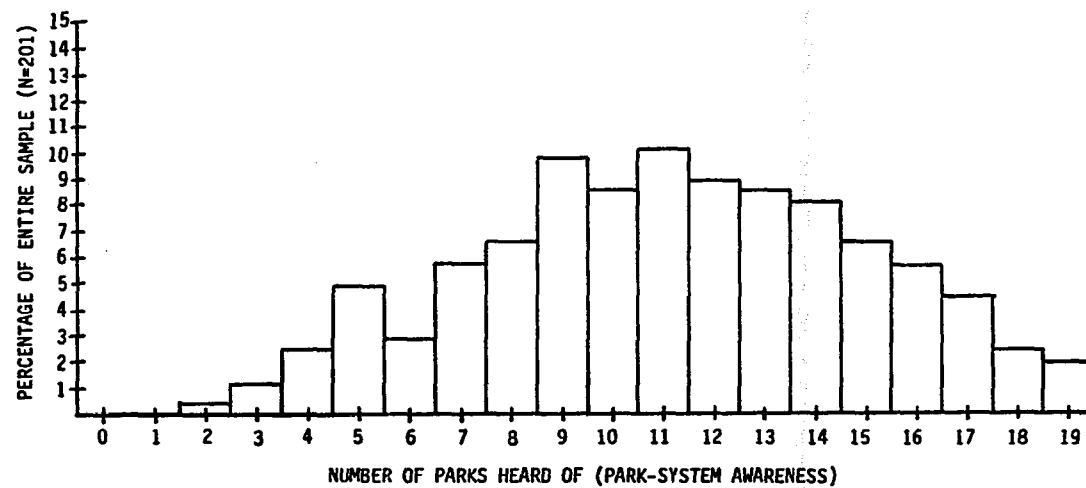
Figure 6.--Frequency distributions of measures of park-system awareness and park-system knowledge.

Reliability and Validity

Using the same procedures described above, the Spearman-Brown reliability coefficient for the measure of park-system awareness was found to be 0.82. This was considered an acceptably high figure.

The measure of park-system awareness represented 19 of the parks in the park system, but it was intended to be a surrogate measure of respondents' awareness of the entire system. It was considered valid as such since the 19 parks on the parks list were distributed throughout the city and represented the major types of parks in the park system.

Using the same procedures outlined above, the Spearman-Brown reliability coefficient for the measure of park-system knowledge was found to be 0.89, an acceptably high figure. The measure of park-system knowledge represented nine of the parks in the park system-- the six study parks plus three additional parks whose amenities were included in the features quiz (Washington, Moores, and Hunter Parks). However, the scale was intended to be a surrogate measure of respondents' knowledge of the entire park system. While it would have been desirable to have had more parks represented, the scale was considered adequate since the locations and characteristics of these nine parks represented most of the diversity of the park system. To have measured knowledge of more than nine parks would have significantly increased the length and complexity of interviews.

Park-system knowledge, as a concept, involves knowledge of the locations and amenities of the parks comprising a park system. By combining responses to the features, facilities, and locations

quizzes, this measure of park-system knowledge represented these fundamental aspects of the concept, and therefore it was concluded that they possessed content validity.

Summary

The patterns displayed by the distributions of most individual park-knowledge scales reflected either a low or moderate level of knowledge among most of the respondents aware of a given park. The individual park scales with low variances did not have a high degree of precision; there was evidence that all the individual-park scales possessed both content and construct validity, and none of the individual-park scales was cumulative.

The distributions of the measures of park-system awareness and park-system knowledge were approximately normal. The reliability coefficients of these measures were acceptably high, and there was reason to believe that they were valid scales.

CHAPTER V

RELATIONSHIPS BETWEEN PARK FAMILIARITY AND

PERSONAL CHARACTERISTICS

This chapter discusses how park familiarity is related both to socioeconomic characteristics and to indices of recreation participation. The discussion focuses on patterns that emerged from analyzing these relationships with respect to the park system and to different types of individual parks.

The chapter begins at a general level by discussing relationships between personal characteristics and park-system familiarity. Then relationships between personal characteristics and familiarity with individual parks are discussed. Next, the results pertaining to awareness of individual parks are summarized and compared with the results pertaining to awareness of the park system. Finally, the results pertaining to knowledge of individual parks are summarized and compared with the results pertaining to knowledge of the park system.

The extent to which an individual's familiarity with either a park system or an individual park differs from that of others can be assessed by examining where, in the distribution of a particular measure, his or her score lies; if the score falls in the upper portion of the distribution, he or she has a high level of familiarity relative to others, and vice versa. In this chapter, the scores of

the various familiarity measures are interpreted in this relative sense as the extent to which they deviate from the norm, and not in an absolute sense as the extent to which they deviate from some minimum value.

Correlates of Park-System Familiarity

Procedures

To facilitate interindividual comparisons of park-system awareness, the sample was divided into three groups representing low, medium, and high awareness of the park system. The groups were formed by dividing the distribution of the measure of park-system awareness into three groups such that the cutoff points were as close to the 25th and 75th percentiles as possible. In general, the "high awareness" group consisted of individuals who scored in the upper 25% of the distribution, the "low awareness" group consisted of individuals who scored in the lower 25% of the distribution, and the "medium awareness" group consisted of individuals who scored between these extremes. Using the same procedures, the sample was also divided into groups representing low, medium, and high knowledge of the park system.

The 25th and 75th percentiles were chosen as cutoff points because these were the cutoff points used to subdivide the knowledge scales of individual parks. Formulating groups in the same manner facilitated comparisons of results. The rationale for using these cutoff points in the case of the knowledge scales for individual parks is described in a subsequent section.

Contingency-table analyses were conducted to compare those personal characteristics of the low-, medium-, and high-awareness/ knowledge groups that were measured on a nominal scale; one-way analyses of variance were conducted to compare those characteristics that were measured on an interval or ratio scale.

The results of analyses involving the measures of park-system awareness and park-system knowledge were not compared since the latter scale represented nine parks, whereas the former scale represented 19 parks. Comparisons of results involving these two measures would have been problematic, for it would have been impossible to determine whether differences (or similarities) in results were due to the nature of the phenomena measured or to the fact that one measure represented more than twice as many parks as the other.

Results

Compared to those with low awareness of the park system, those with high awareness included lower proportions of Blacks and tended to be older, to have lived in the Lansing area longer, and to have participated in more resource-based activities (Tables 11 and 12). Compared to those with low knowledge of the park system, those with high knowledge were better educated, participated in more resource-based and general activities, and contained larger proportions of white-collar workers and individuals residing with children (Tables 13 and 14).

Table 11.--Awareness of park system by nominal-level variables.

Variable	All Subjects N=201	Low Awareness Group N=99	Medium Awareness Group N=110	High Awareness Group N=43	Chi-Square	Sig.
GENDER						
Male	47%	46%	43%	58%		
Female	53	54	57	42	2.75	.253
Totals	100%	100%	100%	100%		
RACE/ETHNICITY						
White	79%	64%	84%	83%		
Black	17	31	11	15		
Hispanic	4	5	5	2	9.89	.042*
Totals	100%	100%	100%	100%		
CHILDREN UNDER 15						
Yes	39%	32%	41%	39%		
No	61	68	59	61	1.19	.551
Totals	100%	100%	100%	100%		
OCCUPATION						
White collar	34%	36%	29%	44%		
Blue collar	23	25	23	17		
Homemaker	16	14	20	8		
Retired	16	8	17	25		
Student	8	14	6	6		
Unemployed	3	3	5	0	14.54	.150
Totals	100%	100%	100%	100%		

Table 12.--Awareness of park system by interval and ratio-level variables.

Variable	All Subjects N=201	Low Awareness Group N=49	Medium Awareness Group N=110	High Awareness Group N=43	F-Ratio	Sig.
Age	42.3	37.1	42.9	46.7	3.34	.037*
Yrs. of residence in area	24.9	13.5	26.1	35.0	16.45	.000*
Yrs. of education	12.8	12.4	12.7	13.3	1.32	.269
No. resource-based activities	2.6	2.1	2.6	3.2	3.49	.032*
No. general activities	2.3	2.1	2.3	2.6	1.09	.339
No. athletic activities	1.0	1.0	0.9	1.2	0.87	.419
Total no. activities	5.9	5.2	5.8	7.0	2.22	.111

Table 13.--Knowledge of park system by nominal-level variables.

Variable	All Subjects N=201	Low Knowledge Group N=47	Medium Knowledge Group N=100	High Knowledge Group N=54	Chi-Square	Sig.
GENDER						
Male	47%	53%	41%	51%		
Female	53	47	59	49	2.33	.312
Totals	100%	100%	100%	100%		
RACE/ETHNICITY						
White	79%	69%	79%	88%		
Black	17	26	17	9		
Hispanic	4	5	4	3	5.97	.201
Totals	100%	100%	100%	100%		
CHILDREN UNDER 15						
Yes	39%	25%	36%	55%		
No	61	75	64	45	9.95	.007*
Totals	100%	100%	100%	100%		
OCCUPATION						
White collar	34%	17%	42%	33%		
Blue collar	23	32	16	26		
Homemaker	16	10	16	21		
Retired	16	25	16	9		
Student	8	14	7	5		
Unemployed	3	2	3	6	19.81	.031*
Totals	100%	100%	100%	100%		

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Table 14.--Knowledge of park system by interval and ratio-level variables.

Variable	All Subjects N=201	Low Knowledge Group N=47	Medium Knowledge Group N=100	High Knowledge Group N=54	F-Ratio	Sig.
Age	42.3	44.0	43.3	39.2	1.09	.337
Yrs. of residence in area	24.9	22.7	25.2	26.3	0.43	.649
Yrs. of education	12.8	11.8	12.9	13.5	5.61	.004*
No. resource-based activities	2.6	2.1	2.3	3.6	9.16	.000*
No. general activities	2.3	2.0	2.1	3.0	7.06	.001*
No. athletic activities	1.0	0.9	0.9	1.2	0.76	.468
Total no. activities	5.9	5.0	5.3	7.8	8.24	.000*

Correlates of Awareness of Individual Parks

Data were collected on respondents' awareness of 19 different parks. Since identifying the correlates of park awareness in the case of each of these parks obviously would have been cumbersome, examples of the major types of parks in Lansing were singled out for study. The following four types of parks were defined on the basis of the kinds of amenities they offer: (1) natural areas; (2) major citywide parks, which provide attractions with essentially universal appeal (e.g., rose garden, zoo, amphitheaters); (3) community parks, which provide attractions with somewhat less universal appeal (e.g., community center, swimming pool, artificial ice rink); and (4) neighborhood parks, which provide facilities designed to serve only residents of the surrounding neighborhood (e.g., play equipment, ball field). Under this classification scheme, natural areas were represented by Fenner Arboretum and Scott Woods; major citywide parks by Frances, Potter, and Riverfront Parks; community parks by Gier Park, Grand Woods, Hunter Park, Kingsley Place Community Center, Moores Park, and Washington Park; and neighborhood parks by Attwood, Bancroft, Cavanaugh, Comstock, Davis, Ferris, Munn, and Tecumseh Parks.

The awareness levels of the major citywide parks were so high that it was concluded that virtually all types of people were aware of these parks. From a practical standpoint, moreover, there were simply not enough respondents unaware of these parks to have permitted meaningful comparisons with aware respondents. Therefore, the analysis focused on the sample's awareness of natural areas, community parks, and neighborhood parks.

Two examples of each of these park types were singled out for analysis to determine whether similar results emerged for the same types of parks. Fenner Arboretum and Scott Woods were selected to represent natural areas since these were the principal parks of this type in Lansing. Gier and Washington Parks were selected to represent community parks since they were both located on major streets and offered important attractions to the communities surrounding them-- a community center in the case of Gier Park and an artificial ice rink (during the winter months) in the case of Washington Park. Both parks, moreover, provided facilities for league softball. Tecumseh and Attwood Parks were selected to represent neighborhood parks because they were wholly surrounded by residential areas and offered only facilities designed to serve the surrounding neighborhood rather than an entire community or city.

In each of the analyses reported below, the entire sample of 201 respondents was divided into two groups: aware respondents and unaware respondents. The aware respondents were those who indicated that they had "heard of" a given park, and the unaware respondents were those who indicated either that they had not "heard of" the park or that they were "not sure." Including the "not sure" respondents in the unaware group was considered a safer procedure than including them in the aware group. Of course, the aware group as thus defined included both individuals who had visited a given park and individuals who had not.

Contingency-table analyses were conducted to compare those characteristics of aware and unaware groups that were measured on a nominal scale; t-tests were conducted to compare those characteristics

that were measured on an interval or ratio scale. The results of contingency-table analyses are presented in Table 15. The results of t-tests are presented in Table 16.

Natural Areas

There were both similarities and differences in the results for the two natural areas. With regard to similarities, the unaware groups for both natural areas, compared to the aware groups, contained significantly more Blacks, were significantly younger, and had less residential tenure. With regard to differences, unaware respondents participated in significantly fewer resource-based activities than aware respondents in the case of Scott Woods but not in the case of Fenner Arboretum. Also, individuals residing with children, respondents with lower educational attainment, and blue-collar workers were overrepresented in the unaware group in the case of Fenner Arboretum but not in the case of Scott Woods. Education may have been related to awareness of Fenner Arboretum but not to an awareness of Scott Woods because the former had an educational orientation, with its nature center and interpretive programs, whereas the latter had no such facilities or programs.

Community Parks

The results for the two community parks were similar in that students were overrepresented among the unaware groups for both parks. However, the differences in the results for the two parks were more pervasive. Blacks were overrepresented among those unaware of Gier Park but not among those unaware of Washington Park; individuals

Table 15.--Park awareness by nominal-level variables.

Variable	All Subjects N=201	Fenner Arboretum				Scott Woods				Gier Park			
		Unaware N=44	Aware N=157	Chi-Sq.	Sig.	Unaware N=139	Aware N=62	Chi-Sq.	Sig.	Unaware N=41	Aware N=160	Chi-Sq.	Sig.
GENDER													
Male	47%	46%	47%			45%	51%			44%	47%		
Female	53	54	53	0.00	.949	55	49	0.56	.455	56	53	0.15	.695
Totals	100%	100%	100%			100%	100%			100%	100%		
RACE/ETHNICITY													
White	79%	43%	90%			74%	91%			70%	81%		
Black	17	46	8			21	8			28	14		
Hispanic	4	11	2	46.05	.000*	5	1	7.29	.026*	2	5	4.96	.084
Totals	100%	100%	100%			100%	100%			100%	100%		
CHILDREN UNDER 15													
Yes	39%	52%	35%			41%	32%			30%	41%		
No	61	48	65	4.28	.039*	59	68	1.60	.205	70	59	1.59	.207
Totals	100%	100%	100%			100%	100%			100%	100%		
OCCUPATION													
White collar	34%	22%	37%			33%	36%			30%	35%		
Blue collar	23	35	19			25	17			24	22		
Homemaker	16	15	16			17	14			12	17		
Retired	16	6	20			14	23			10	18		
Student	8	22	4			9	5			18	5		
Unemployed	3	0	4	27.69	.000*	2	5	5.55	.353	6	3	10.21	.069
Totals	100%	100%	100%			100%	100%			100%	100%		

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Table 15.--Continued.

Variable	All Subjects N=201	Washington Park				Tecumseh Park				Attwood Park			
		Unaware N=50	Aware N=151	Chi-Sq.	Sig.	Unaware N=119	Aware N=82	Chi-Sq.	Sig.	Unaware N=147	Aware N=54	Chi-Sq.	Sig.
GENDER													
Male	47%	47%	46%			44%	51%			48%	43%		
Female	53	53	54	0.02	.893	56	49	0.79	.374	52	57	0.39	.533
Totals	100%	100%	100%			100%	100%			100%	100%		
RACE/ETHNICITY													
White	79%	79%	79%			81%	77%			79%	79%		
Black	17	20	16			14	20			16	20		
Hispanic	4	1	5	1.32	.517	5	3	1.42	.492	5	1	1.61	.446
Totals	100%	100%	100%			100%	100%			100%	100%		
CHILDREN UNDER 15													
Yes	39%	26%	43%			35%	43%			32%	57%		
No	61	74	57	4.28	.039*	65	57	1.40	.237	68	43	10.43	.001*
Totals	100%	100%	100%			100%	100%			100%	100%		
OCCUPATION													
White collar	34%	34%	34%			34%	35%			31%	43%		
Blue collar	23	18	24			22	23			23	20		
Homemaker	16	12	17			16	15			16	15		
Retired	16	18	16			16	17			17	14		
Student	8	16	5			9	6			8	8		
Unemployed	3	2	4	8.49	.131	3	4	0.91	.969	5	0	4.67	.457
Totals	100%	100%	100%			100%	100%			100%	100%		

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Table 16.--Park awareness by interval and ratio-level variables.

Variable	Mean Value For...			T Value	2-Tailed Probability
	All Subjects	Unaware Subjects	Aware Subjects		
FENNER ARBORETUM	N=201	N=44	N=156		
Age	42.3	31.6	45.4	-5.43	.000*
Yrs. of residence in area	24.9	10.9	28.9	-6.79	.000*
Yrs. of education	12.8	11.6	13.1	-3.64	.000*
No. resource-based activities	2.6	2.2	2.7	-1.25	.213
No. general activities	2.3	2.4	2.3	0.59	.558
No. athletic activities	1.0	1.3	0.9	1.78	.077
Total no. activities	5.9	6.0	5.9	0.13	.894
SCOTT WOODS	N=201	N=139	N=61		
Age	42.3	40.4	46.7	-2.28	.024*
Yrs. of residence in area	24.9	21.8	31.9	-3.46	.001*
Yrs. of education	12.8	12.6	13.2	-1.30	.194
No. resource-based activities	2.6	2.4	3.0	-1.94	.054*
No. general activities	2.3	2.4	2.1	0.98	.327
No. athletic activities	1.0	1.0	1.0	0.25	.806
Total no. activities	5.9	5.8	6.1	-0.49	.624
GIER PARK	N=201	N=41	N=159		
Age	42.3	38.7	43.3	-1.42	.156
Yrs. of residence in area	24.9	19.8	26.2	-1.90	.059
Yrs. of education	12.8	12.1	13.0	-1.79	.075
No. resource-based activities	2.6	2.4	2.6	-0.78	.438
No. general activities	2.3	2.1	2.4	-0.97	.331
No. athletic activities	1.0	1.1	1.0	0.75	.451
Total no. activities	5.9	5.6	6.0	-0.57	.571

Table 16.--Continued.

Variable	Mean Value For...			T Value	2-Tailed Probability
	All Subjects	Unaware Subjects	Aware Subjects		
WASHINGTON PARK	N=201	N=50	N=150		
Age	42.3	40.3	43.0	-0.89	.374
Yrs. of residence in area	24.9	20.4	26.4	-1.92	.057
Yrs. of education	12.8	12.9	12.8	0.23	.820
No. resource-based activities	2.6	2.5	2.6	-0.50	.620
No. general activities	2.3	2.2	2.3	-0.63	.532
No. athletic activities	1.0	1.1	1.0	0.71	.476
Total no. activities	5.9	5.7	5.9	-0.30	.767
TECUMSEH PARK	N=201	N=119	N=81		
Age	42.3	42.3	42.3	0.01	.991
Yrs. of residence in area	24.9	23.8	26.5	-0.95	.343
Yrs. of education	12.8	12.5	13.2	-1.85	.065
No. resource-based activities	2.6	2.4	2.8	-1.47	.142
No. general activities	2.3	2.1	2.6	-1.82	.070
No. athletic activities	1.0	0.9	1.1	-0.95	.343
Total no. activities	5.9	5.5	6.5	-1.77	.079
ATTWOOD PARK	N=201	N=147	N=53		
Age	42.3	43.3	39.8	1.19	.235
Yrs. of residence in area	24.9	24.6	25.8	-0.38	.706
Yrs. of education	12.8	12.5	13.5	-2.71	.008*
No. resource-based activities	2.6	2.5	2.9	-1.25	.212
No. general activities	2.3	2.2	2.7	-1.99	.048*
No. athletic activities	1.0	0.9	1.2	-1.35	.178
Total no. activities	5.9	5.6	6.8	-1.84	.067

without children in the household were overrepresented among those

unaware of Washington Park but not among those unaware of Gier Park.

Neighborhood Parks

Several relationships emerged in the case of Attwood Park

that did not in the case of Tecumseh Park. Those unaware of Attwood

Park, compared to those who were aware of this park, tended to be

people who did not reside with children, who were less educated, and

who participated in fewer general recreation activities.

Summary

Table 17 summarizes the results presented in this section by

recording which variables were found to be significantly related to

awareness of the various parks. Table 17 highlights the fact that

within each pair of park types there were both similarities and dif-

ferences in results. Race/ethnicity, age, and length of residency

were related to awareness in the case of both natural areas, but

education and occupation were related to awareness of Fenner Arboretum

only, and participation in resource-based activities was related to

awareness of Scott Woods only. Virtually no socioeconomic or

recreation-participation variables were related to awareness of either

community park. Presence of children, years of education, and par-

ticipation in general activities were related to awareness of Attwood

Park but not to awareness of Tecumseh Park.

These differences within the pairs of park types suggested

that each park possesses a degree of uniqueness. This in turn made

it difficult to generalize about which variables were related to

Table 17.--Statistically significant relationships between park awareness and personal characteristics.

Variable	Fenner Arboretum	Scott Woods	Gier Park	Washington Park	Tecumseh Park	Attwood Park
Gender						
Race/ethnicity	X	X				
Children under 15	X			X		X
Occupation	X					
Age	X	X				
Yrs. of residence in area	X	X				
Yrs. of education	X					X
No. resource-based activities		X				
No. general activities						X
No. athletic activities						
Total no. activities						

awareness of specific types of parks. Two general patterns, however, are apparent in Table 17: (1) gender, the number of athletic activities participated in, and the total number of recreation activities participated in were not related to awareness of any of the parks studied; and (2) most socioeconomic variables were important correlates of park awareness in the case of the two natural areas but not in the case of the community or neighborhood parks.

The uniqueness of each park, which is apparent from this analysis, suggests the value of identifying relationships between park-awareness levels and park characteristics such as acreage, years of operation, degree of development, visibility from passing traffic, and number and type of facilities provided.

The correlates of park-system awareness were similar to the correlates of only one of the parks studied in this section: Scott Woods. The group consisting of those with high awareness of the park system and the group consisting of those aware of Scott Woods both included lower proportions of Blacks and tended to be older, to have lived in the Lansing area longer, and to have participated in more resource-based activities compared to other respondents. This suggested that those who had heard of Scott Woods should have been aware of more of the other 18 parks on the parks list than those who had not heard of Scott Woods. Subsequent analysis revealed that this was indeed the case. Those aware of Scott Woods had heard of an average of 12.8 other parks, whereas those unaware of this park had heard of an average of 10.1 other parks. The difference between these means was statistically significant (t-value = 5.29; p < .001).

Correlates of Knowledge of Individual Parks

The six study parks are the subject of the analyses reported in this section. As in the analyses reported in the previous chapter, the analysis for a given park included only those respondents who reported being aware of that park.

Respondents aware of a given park were divided into low-, medium-, and high-knowledge groups. The groups were formed by dividing each park's distribution of knowledge scores into three groups such that the cutoff points were as close to the 25th and 75th percentiles as possible. The knowledge scores constituting each group for each park are shown in Table 18. In general, the high-knowledge group of a given park consisted of individuals who scored in the upper 25% of the distribution, the low-knowledge groups consisted of individuals who scored in the lower 25% of the distribution, and the medium-knowledge group consisted of individuals who scored between these extremes. In the discussion below, members of the low-knowledge group for a given park are referred to simply as the "lows," and members of the high-knowledge group simply as the "highs."

Since the low-, medium-, and high-knowledge groups of each park consisted of individuals who scored in roughly comparable areas of their respective distributions, low knowledge, medium knowledge, and high knowledge had similar meanings for each park. Thus it was possible to compare results across parks and so determine whether certain variables were related to people's relative knowledgeabilities of certain types of parks.

Table 18.--Scores comprising knowledge groups of each study park.

Park	Knowledge Group					
	Low		Medium		High	
	Scores	Percentiles	Scores	Percentiles	Scores	Percentiles
Fenner Arboretum	1-3	0-22	4-7	23-76	8-11	77-100
Scott Woods	1	0-29	2-4	30-72	5-8	73-100
Gier Park	1	0-21	2-4	22-75	5-8	76-100
Frances Park	1-3	0-22	4-5	23-68	6-8	69-100
Potter Park	1-6	0-25	7-8	26-89	9-10	90-100
Riverfront Park	1-3	0-33	4-5	34-75	6-10	76-100

The 25th and 75th percentiles were chosen as the cutoff points because this isolated respondents at the extremes of the distributions and thus ensured that the low- and high-knowledge groups consisted only of individuals with knowledgeabilities that definitely differed from the norm. Moreover, the high-knowledge group for each park as thus defined consisted only of individuals who had visited that park, with the exception of a single respondent in the case of Riverfront Park. The comparability of the high-knowledge groups was enhanced by this consistency in their composition.

Knowledge scores could also have been converted into z-scores to obtain measures of relative knowledgeabilities that could have been compared across parks. This, however, would have required an assumption that the scales had equal intervals. And since some scales lacked a high level of reliability, attempting to make fine distinctions among people's knowledgeabilities through the use of z-scores was not as appropriate as making only crude distinctions by grouping scores into general categories.

This analysis was conducted in the same manner as the one in the previous section except that interval- or ratio-level variables were analyzed using one-way analysis of variance instead of t-tests.[1]

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[1]The analysis-of-variance model assumes that group variances are equal. For each analysis of variance conducted, the Cochran's C statistic was calculated to determine if this assumption had been violated. The results of these tests indicated that group variances could not be assumed to be equal in 9 of the 48 analyses of variance reported below. These violations, however, were considered to have negligible effects on the results because the sample sizes of the three groups, in the case of each analysis, were approximately symmetrical in their distribution. According to empirical tests conducted by Box (1954, p. 301), either a uniform or symmetrical distribution

The results of contingency-table analyses are presented in Table 19. The results of analyses of variance are presented in Table 20.

In interpreting the results in this section, it is useful to keep in mind the differing patterns of park visitation displayed by the lows and the highs (Table 21). The majority of the lows for each park were individuals who either never visited the park or last visited it more than a year before being interviewed. The majority of the highs for each park, on the other hand, were individuals who last visited it within the one-year period before being interviewed. Thus the lows were largely nonvisitors and nonrecent visitors, whereas the highs were largely recent visitors.

Fenner Arboretum

Compared to the highs, the lows were more likely to be male, Black, retired, to be students, and to not reside with children. The highs, on the other hand, were more likely than the lows to be female, White, below average in age, above average in the number of resource-based or general activities participated in, to reside with children, and to work in a white-collar occupation.

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of group sizes largely ameliorates the effects of unequal group variances. A formula Box (1954, p. 301) provided was used to estimate the bias introduced by unequal variances in the case of Potter Park (which has the least symmetrical group sizes) for the length-of-residency variable (which has the most unequal group variances). The results, even for this worst possible case, confirmed that very little bias was introduced by unequal group variances.

Table 19.--Park knowledge by nominal-level variables.

Variable	Fenner Arboretum						Scott Woods						Gier Park					
	All N=157	Low N=35	Medium N=84	High N=38	Chi-Sq.	Sig.	All N=62	Low N=18	Medium N=26	High N=17	Chi-Sq.	Sig.	All N=160	Low N=33	Medium N=86	High N=40	Chi-Sq.	Sig.
GENDER																		
Male	47%	59%	44%	41%			51%	(32%)	63%	(52%)			47%	35%	45%	63%		
Female	53	41	56	59	2.95	.229	49	(68)	37	(48)	4.07	.131	53	65	55	37	6.35	.042*
Totals	100%	100%	100%	100%			100%	100%	100%	100%			100%	100%	100%	100%		
RACE/ETHNICITY																		
White	90%	74%	94%	94%			91%	(82%)	100%	(86%)			81%	97%	78%	76%		
Black	8	24	4	4			8	(18)	0	(9)			14	3	15	20		
Hispanic	2	2	2	2	13.74	.008*	1	(0)	0	(5)	7.08	.132	5	0	7	4	8.07	.089
Totals	100%	100%	100%	100%			100%	100%	100%	100%			100%	100%	100%	100%		
CHILDREN UNDER 15																		
Yes	35%	24%	31%	52%			32%	(18%)	34%	(43%)			41%	33%	31%	69%		
No	65	76	69	48	7.32	.026*	68	(82)	66	(57)	2.60	.273	59	67	69	31	18.42	.000*
Totals	100%	100%	100%	100%			100%	100%	100%	100%			100%	100%	100%	100%		
OCCUPATION																		
White collar	37%	21%	42%	41%			36%	(41%)	37%	(29%)			35%	40%	33%	35%		
Blue collar	19	22	18	20			18	(14)	19	(19)			22	10	20	37		
Homemaker	16	14	17	17			13	(9)	13	(19)			17	15	19	14		
Retired	20	31	18	11			23	(27)	31	(5)			18	28	21	4		
Student	4	12	1	2			5	(9)	0	(9)			5	0	6	8		
Unemployed	4	0	4	9	18.69	.044*	5	(0)	0	(19)	...	...	3	7	1	2	19.91	.030*
Totals	100%	100%	100%	100%			100%	100%	100%	100%			100%	100%	100%	100%		

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Table 19.--Continued.

Variable	Frances Park						Potter Park						Riverfront Park					
	All N=190	Low N=42	Medium N=87	High N=61	Chi-Sq.	Sig.	All N=201	Low N=51	Medium N=128	High N=22	Chi-Sq.	Sig.	All N=199	Low N=66	Medium N=83	High N=49	Chi-Sq.	Sig.
GENDER																		
Male	45%	55%	45%	39%			47%	45%	47%	48%			47%	41%	47%	57%		
Female	55	45	55	61	2.48	.290	53	55	53	52	0.07	.963	53	59	53	43	2.73	.256
Totals	100%	100%	100%	100%			100%	100%	100%	100%			100%	100%	100%	100%		
RACE/ETHNICITY																		
White	79%	78%	83%	72%			79%	82%	77%	85%			79%	79%	80%	78%		
Black	17	18	10	27			17	15	18	15			17	19	15	17		
Hispanic	4	4	7	1	8.65	.070	4	3	5	0	1.95	.746	4	2	5	5	1.00	.910
Totals	100%	100%	100%	100%			100%	100%	100%	100%			100%	100%	100%	100%		
CHILDREN UNDER 15																		
Yes	40%	27%	36%	54%			39%	13%	45%	63%			38%	40%	35%	42%		
No	60	73	64	46	8.41	.015*	61	87	55	37	21.70	.000*	62	60	65	58	.078	.675
Totals	100%	100%	100%	100%			100%	100%	100%	100%			100%	100%	100%	100%		
OCCUPATION																		
White collar	33%	33%	36%	27%			34%	29%	37%	26%			34%	27%	36%	40%		
Blue collar	23	25	21	26			23	20	24	22			23	23	23	24		
Homemaker	17	10	16	22			16	11	17	22			15	16	14	15		
Retired	17	22	21	8			16	29	12	11			17	24	13	13		
Student	7	4	5	13			8	8	8	8			8	7	10	5		
Unemployed	3	6	1	4	15.10	.128	3	3	2	11	14.42	.155	3	3	4	3	5.87	.826
Totals	100%	100%	100%	100%			100%	100%	100%	100%			100%	100%	100%	100%		

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Table 20.--Park knowledge by interval and ratio-level variables.

Variable	Mean Value For...				F Ratio	Sig.
	All Aware Subjects	Low-Knowledge Group	Medium-Knowledge Group	High-Knowledge Group		
FENNER ARBORETUM	N=157	N=35	N=84	N=38		
Age	45.4	48.5	47.0	39.1	3.05	.050*
Yrs. of residence in area	28.9	30.9	30.1	24.4	1.47	.234
Yrs. of education	13.1	12.6	13.3	13.4	1.16	.315
No. resource-based activities	2.7	2.0	2.5	3.7	6.82	.001*
No. general activities	2.3	1.7	2.2	3.0	5.62	.004*
No. athletic activities	0.9	0.9	0.8	1.2	1.84	.162
Total no. activities	5.9	4.5	5.5	7.8	6.94	.001*
SCOTT WOODS	N=62	N=18	N=26	N=17		
Age	46.7	(52.1)	51.7	(33.8)	6.60	.003*
Yrs. of residence in area	31.9	(36.1)	34.9	(22.8)	2.93	.061
Yrs. of education	13.2	(12.9)	13.2	(13.3)	0.12	.883
No. resource-based activities	3.0	(2.2)	2.7	(4.4)	6.46	.003*
No. general activities	2.1	(1.8)	1.6	(3.3)	10.91	.000*
No. athletic activities	1.0	(0.9)	0.7	(1.4)	1.82	.171
Total no. activities	6.1	(5.0)	4.9	(9.1)	9.58	.000*
GIER PARK	N=160	N=33	N=86	N=40		
Age	43.3	51.3	44.7	33.6	9.98	.000*
Yrs. of residence in area	26.2	30.4	27.6	20.0	3.09	.048*
Yrs. of education	13.0	13.5	12.9	12.6	1.11	.332
No. resource-based activities	2.6	2.4	2.6	2.9	0.58	.559
No. general activities	2.4	2.3	2.1	3.1	5.45	.005*
No. athletic activities	1.0	0.6	0.8	1.5	6.37	.002*
Total no. activities	6.0	5.3	5.5	7.5	4.05	.019*

Table 20.--Continued.

Variable	Mean Value For...				F Ratio	Sig.
	All Aware Subjects	Low-Knowledge Group	Medium-Knowledge Group	High-Knowledge Group		
FRANCES PARK	N=190	N=42	N=87	N=61		
Age	43.1	46.5	45.5	37.4	4.50	.012*
Yrs. of residence in area	25.9	25.3	28.8	22.1	2.20	.114
Yrs. of education	12.7	12.8	12.5	13.0	0.55	.579
No. resource-based activities	2.6	2.2	2.6	2.8	0.90	.407
No. general activities	2.3	2.0	2.1	2.7	3.33	.038*
No. athletic activities	0.9	0.7	0.8	1.2	3.50	.032*
Total no. activities	5.8	4.9	5.5	6.8	2.95	.055*
POTTER PARK	N=201	N=51	N=128	N=22		
Age	42.3	51.7	39.5	37.0	9.85	.000*
Yrs. of residence in area	24.9	30.8	23.7	18.3	4.00	.020*
Yrs. of education	12.8	12.7	12.8	13.0	0.10	.902
No. resource-based activities	2.6	1.9	2.8	3.2	4.80	.009*
No. general activities	2.3	1.7	2.5	2.8	4.81	.009*
No. athletic activities	1.0	0.8	1.1	0.7	2.24	.109
Total no. activities	5.9	4.3	6.4	6.8	5.13	.007*
RIVERFRONT PARK	N=199	N=66	N=83	N=49		
Age	42.3	45.7	40.3	41.2	1.74	.177
Yrs. of residence in area	24.9	27.9	23.8	22.8	1.24	.291
Yrs. of education	12.8	12.1	13.0	13.5	4.98	.008*
No. resource-based activities	2.6	2.3	2.7	3.0	1.96	.143
No. general activities	2.3	2.1	2.2	2.9	3.37	.036*
No. athletic activities	1.0	0.9	1.0	1.2	0.59	.558
Total no. activities	5.9	5.3	5.8	7.1	2.65	.073

Table 21.--Visitation characteristics of the low-, medium-, and high-knowledge groups of each study park.

Park	Visitation Status	All Aware Subjects	Knowledge Group Low	Knowledge Group Medium	Knowledge Group High
Fenner Arboretum		N=155	N=33	N=84	N=38
	Never visited	13%	40%	9%	0%
	Visited over 5 yrs. ago	19	15	25	9
	Visited within last 5 yrs.	37	33	38	39
	Visited within last year	31	12	28	52
	Totals	100%	100%	100%	100%
Scott Woods		N=60	N=17	N=26	N=17
	Never visited	43%	(91%)	39%	(0%)
	Visited over 5 yrs. ago	15	(9)	29	(0)
	Visited within last 5 yrs.	16	(0)	22	(24)
	Visited within last year	26	(0)	10	(76)
	Totals	100%	100%	100%	100%
Gier Park		N=158	N=31	N=86	N=40
	Never visited	27%	76%	21%	0%
	Visited over 5 yrs. ago	9	8	12	4
	Visited within last 5 yrs.	31	13	38	31
	Visited within last year	33	3	29	65
	Totals	100%	100%	100%	100%
Frances Park		N=189	N=42	N=86	N=61
	Never visited	9%	37%	2%	0%
	Visited over 5 yrs. ago	10	20	9	4
	Visited within last 5 yrs.	29	25	37	20
	Visited within last year	52	18	52	76
	Totals	100%	100%	100%	100%
Potter Park		N=201	N=51	N=127	N=22
	Never visited	2%	8%	0%	0%
	Visited over 5 yrs. ago	11	24	7	4
	Visited within last 5 yrs.	30	31	32	18
	Visited within last year	57	37	61	78
	Totals	100%	100%	100%	100%
Riverfront Park		N=199	N=66	N=83	N=49
	Never visited	17%	39%	8%	2%
	Visited over 5 yrs. ago	0	0	0	0
	Visited within last 5 yrs.	14	16	18	5
	Visited within last year	69	45	74	93
	Totals	100%	100%	100%	100%

Scott Woods

As observed with Fenner Arboretum, the lows were more likely
than the highs to be Black, retired, and to not reside with children;
and the highs were below average in age and above average in partici-
pation in resource-based and general activities. But several differ-
ences in the results for the two natural areas also emerged. The
Fenner Arboretum lows tended to be male, whereas the Scott Woods lows
tended to be female. The Fenner Arboretum highs tended to be White
and to work in white-collar occupations, whereas no such tendencies
existed among the Scott Woods highs. The Fenner Arboretum lows were
more likely to be students than the Fenner Arboretum highs, whereas
no such relationship existed in the case of Scott Woods.

Gier Park

As observed in the case of both natural areas, the highs were
more likely than the lows to be below average in age, to be above
average in the number of general activities participated in, and to
reside with children. But whereas those with high knowledge of the
natural areas tended to participate in relatively more resource-based
activities, the Gier Park highs tended to participate in more athletic
activities. This probably reflected the fact that Gier Park was a
highly developed area providing athletic facilities, whereas the
natural areas were largely undeveloped areas providing aesthetic
amenities.

The highs contained higher representations of blue-collar
workers (37%) and males (63%) than were observed with any of the

other parks. The latter finding was probably another reflection of the park's athletic orientation. Another distinction between the two natural areas and Gier Park is that in the case of Fenner Arboretum and Scott Woods the lows were more likely to be Black than the highs, whereas in the case of Gier Park the highs were more likely to be Black than the lows.

Frances Park

As observed with Gier Park, the highs were more likely than the lows to be Black, below average in age, above average in the number of general and athletic activities participated in, and to reside with children. The similarity between the two parks did not, however, exist with respect to gender; the Gier Park highs tended to be male, whereas the Frances Park highs tended to be female.

Potter Park

As with both natural areas, the highs were more likely than the lows to be below average in age, above average in the number of general and resource-based activities they participated in, and to reside with children. Most of the resource-based activities involved some type of appreciation of the natural world, which may explain why individuals who were familiar with the natural areas or with the park that had a zoo were more likely to have participated in a variety of these activities.

Riverfront Park

The highs were similar to the lows except they were relatively better educated and participated in more general activities.

Summary

Table 22 summarizes the results presented in this section by recording which variables were found to be significantly related to knowledge of the various parks. According to Table 22, the variables that were important correlates of knowledge in the case of most parks were: number of general activities participated in, total number of activities participated in, presence of children, and age. In general, the lows for most parks tended to be above average in age, below average in number of recreation activities participated in, and to not reside with children. The highs for most parks, in direct contrast, tended to be below average in age, above average in number of recreation activities participated in, and to reside with children.

The characteristics of these groups were what one would have expected, since the lows were mostly nonvisitors or nonrecent visitors to the various parks, whereas the highs were mostly recent visitors. The lows, who were older individuals, were less likely to be active in outdoor recreation or to be recent park users, and hence they were less likely to be knowledgeable about parks. The highs, on the other hand, were younger individuals, who were more apt to be active in outdoor recreation and to be recent park users, and thus they were more likely to be knowledgeable about parks.

The presence of children was positively related to knowledge in the case of Fenner Arboretum, Frances Park, Gier Park, and Potter Park, perhaps because each of these parks provides facilities with appeal to children: Fenner Arboretum provides a nature center with exhibits for children; Frances Park provides extensive play equipment;

Table 22.--Statistically significant relationships between park knowledge and personal characteristics.

Variable	Fenner Arboretum	Scott Woods	Gier Park	Frances Park	Potter Park	Riverfront Park
Gender			X			
Race/ethnicity	X					
Children under 15	X		X	X	X	
Occupation	X	...	X			
Age	X	X	X	X	X	
Yrs. of residence in area			X		X	
Yrs. of education						X
No. resource-based activities	X	X			X	
No. general activities	X	X	X	X	X	X
No. athletic activities			X	X		
Total no. activities	X	X	X	X	X	

Gier Park offers ball fields for little-league competition; and
Potter Park provides a zoo and a train ride. The weak relationship
in the case of Scott Woods and the absence of a relationship in the
case of Riverfront Park may have reflected the lack of attractions
for children at these parks, including their relatively limited pro-
vision of play equipment. Thus the results of the park-knowledge
analysis seemed to reflect park characteristics, as did the results
of the park-awareness analysis. This suggests that relationships
between park characteristics and park knowledge, as well as park
awareness, are worthy of study.

There were both similarities and differences in the results
that emerged from the analysis of park-system knowledge and the analy-
ses of knowledge of individual parks. Those with high knowledge of
the park system tended to participate in more general activities and
to reside with children, as did those with high knowledge of most of
the individual study parks. On the other hand, those with high knowl-
edge of the park system tended to be better educated, to participate
in more resource-based activities, and to be white-collar workers,
whereas these characteristics were not present with the highs of most
study parks. Moreover, age was found to be negatively related to
knowledge in the case of five of the six study parks, whereas no
such relationship emerged in the case of park-system knowledge. To
some extent, these differences in results may have been due to the
fact that only individuals aware of a given park were studied in the
individual park-knowledge analysis, whereas the entire sample was
included in the analysis of park-system knowledge.

CHAPTER VI

RELATIONSHIPS BETWEEN PARK FAMILIARITY AND
DISTANCES FROM RESIDENCES TO PARKS

This chapter discusses the extent to which respondents who
were familiar with a given park tended to live closer to it than
respondents who were unfamiliar with it. The chapter begins with a
discussion of relationships between park awareness and distance.
This is followed by a discussion of relationships between park knowl-
edge and distance. In each analysis, the same procedures followed
in the previous chapter were used to classify respondents as being
"unaware" or "aware" or as having "low," "medium," or "high" knowledge
of a given park.

Relationships between awareness of a given park and distance
were identified both by comparing aware respondents and unaware
respondents in terms of the mean distance from their homes to the park
and by calculating the awareness levels of respondents living in each
of several 1½-mile distance bands centered on the park. The awareness
level associated with each of these distance bands was estimated as
the proportion of the respondents residing in the band that had
"heard of" the park.

Park Awareness and Distance

The various curves presented in Figure 7 demonstrate that awareness of most parks fluctuated over space.[1] The overall awareness level of a park (Table A1), since it was calculated from the sample as a whole, represented a citywide average that may not have accurately reflected its awareness level among residents of a given neighborhood. Scott Woods, for example, had an overall awareness level of 31%, but its awareness level among respondents residing within 1½ miles of the park was 60%, and its awareness level among respondents residing between 4½ and 6 miles of the park was only 13%. The latter awareness level seems particularly low since Scott Woods is supposed to be a park that serves a citywide clientele.

The awareness curves for some parks (e.g., Munn, Cavanaugh, Attwood) declined across distance bands, whereas the awareness curves for other parks (e.g., Ferris, Potter, Moores, Riverfront) remained relatively horizontal across distance bands. To determine how awareness levels varied over space in general, awareness levels for a given distance band were averaged across all 18 parks. This was done for each of the four distance bands all parks had in common. The results, displayed graphically in Figure 8, revealed that awareness levels, on the average, declined from 75% among respondents residing within the

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[1]Some of the curves in Figure 7 do not include estimates of awareness levels for certain of the more remote distance bands due to insufficient numbers of respondents residing in these portions of the city. The total sample size upon which each curve is based is reported next to the park name identifying a given curve. The results pertaining to Grand Woods (which is outside the city limits) are not shown in Figure 7 due to insufficient numbers of respondents residing within the least-remote distance band surrounding this park.
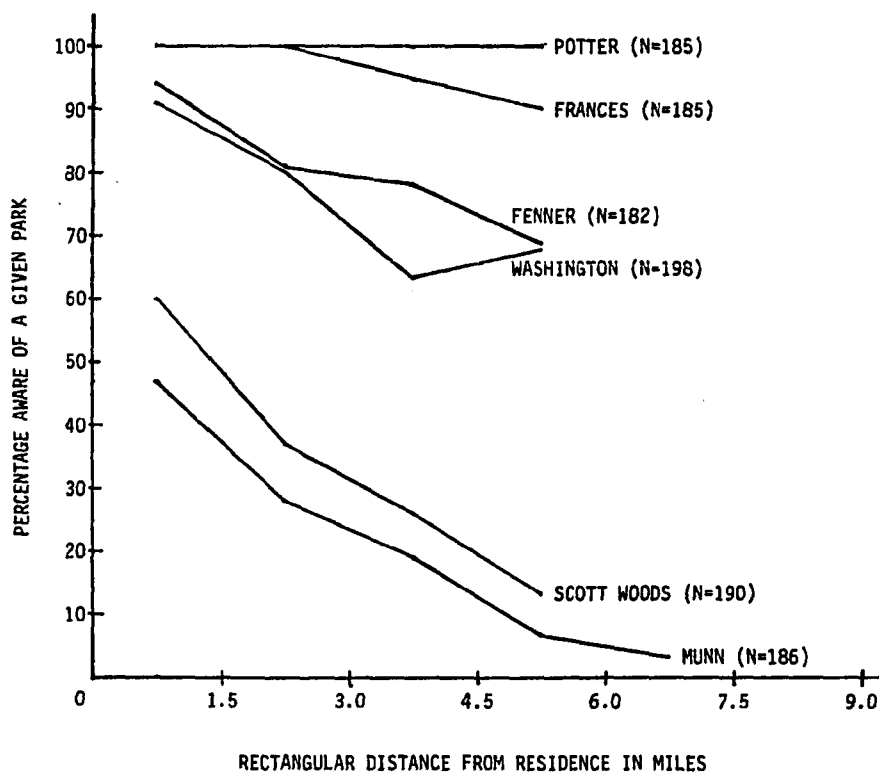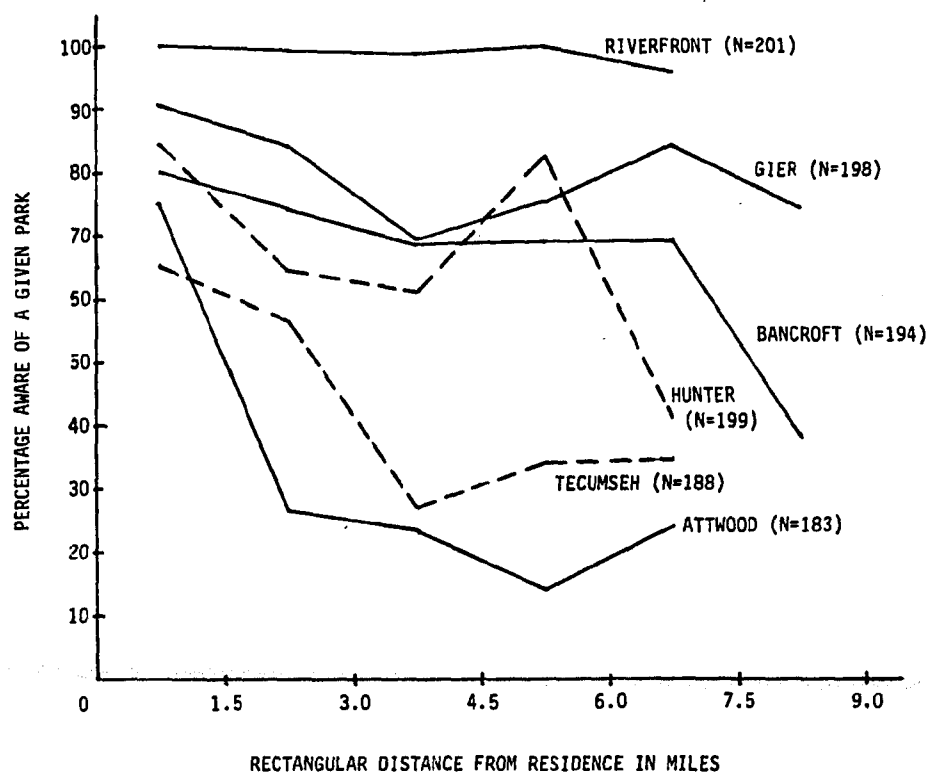
Figure 7: Park awareness levels by distance band.

MOORES (N=201)

COMSTOCK (N=199)

KINGSLEY (N=194)

FERRIS (N=186)

PERCENTAGE AWARE OF A GIVEN PARK

RECTANGULAR DISTANCE FROM RESIDENCE IN MILES

CAVANAUGH (=201)

DAVIS (N=150)

PERCENTAGE AWARE OF A GIVEN PARK

RECTANGULAR DISTANCE FROM RESIDENCE IN MILES

Figure 7.--Continued.

RECTANGULAR DISTANCE FROM RESIDENCE IN MILES
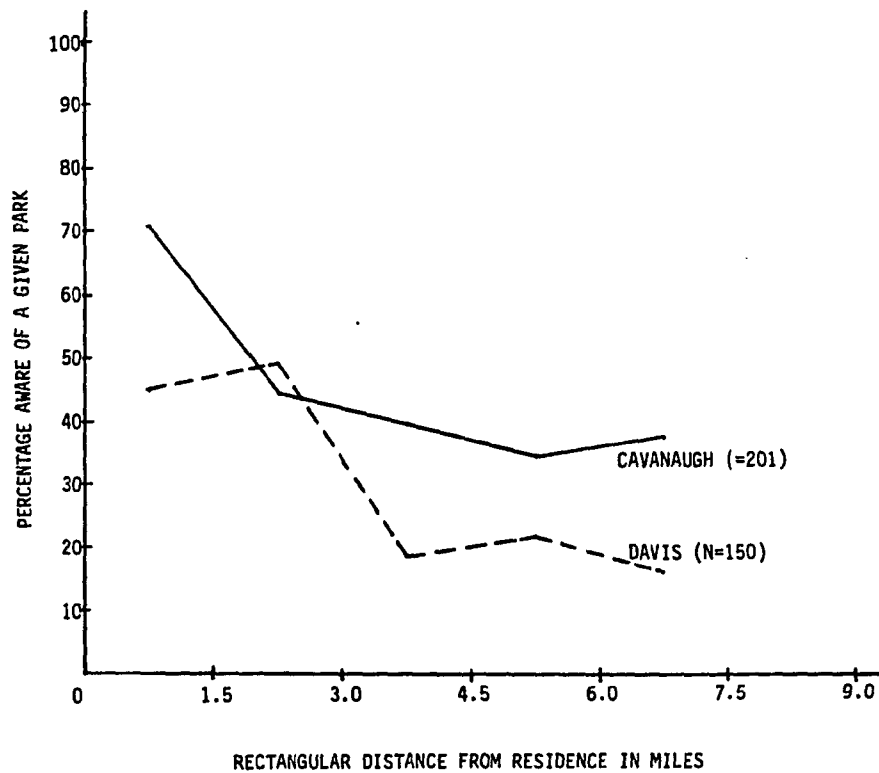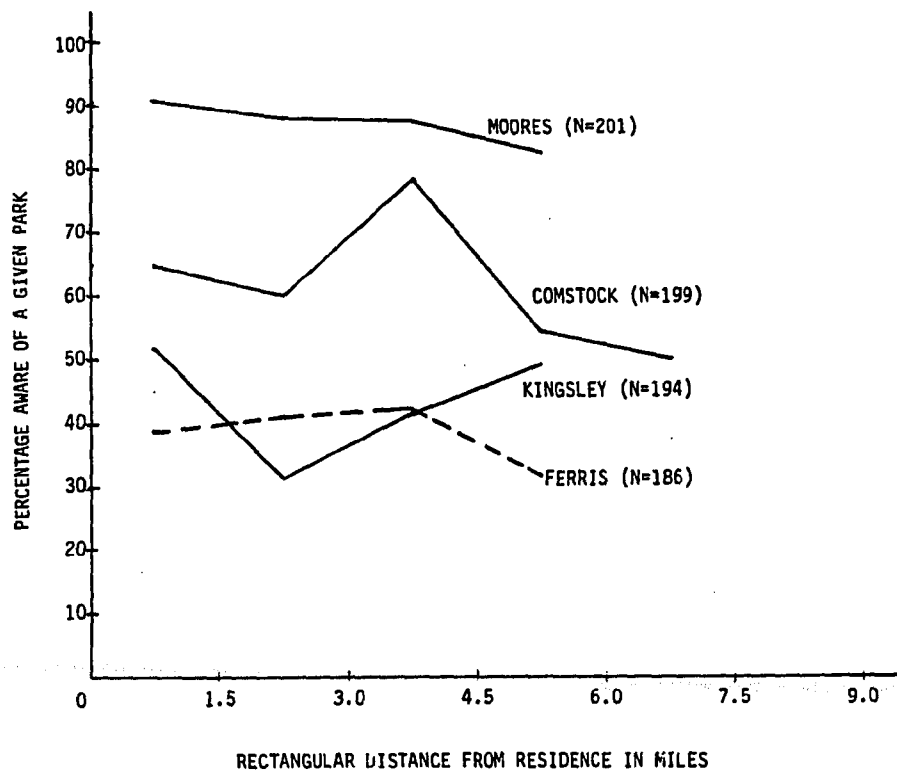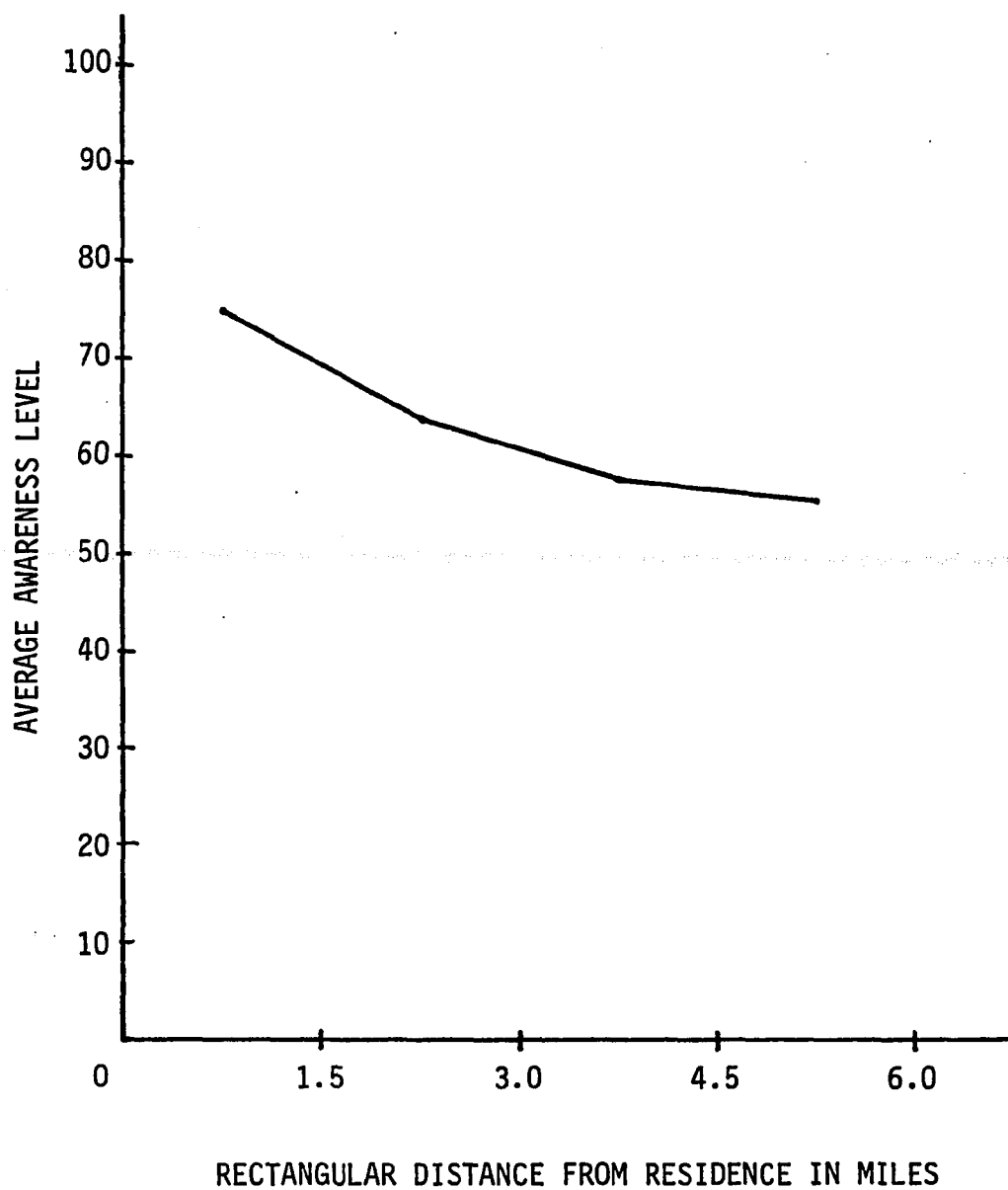
Figure 8.--Average park-awareness levels by distance band.

first 1½-mile distance bands to 55% among respondents residing within the 4½- to 6-mile distance bands.

T-tests revealed that, on the average, unaware respondents tended to live farther from a given park in the case of 9 of the 19 parks (Table 23). The awareness levels of these nine parks declined more regularly and markedly across distance bands than the awareness levels of the other ten parks (Figure 7).

Using the classification scheme described in Chapter V, it was apparent that these nine parks included a natural area (Scott Woods), a major citywide park (Frances), a community park (Washington), and neighborhood parks (Attwood, Bancroft, Cavanaugh, Davis, Munn, and Tecumseh).[2] Thus distance was related to awareness of several different types of parks. But distance was not related to awareness of all of the parks of a given type. No relationships between awareness and distance emerged in the case of a natural area (Fenner Arboretum), certain major citywide parks (Potter and Riverfront), certain community parks (Gier, Grand Woods, Hunter, Kingsley Place Community Center, and Moores), and certain neighborhood parks (Comstock and Ferris). Thus it cannot be said that awareness was related to distance for all members of a certain class of parks. It can only be concluded that distance, like personal characteristics, was related to park awareness in the case of some but not all parks of a given type.

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[2]Some caution is requisite in interpreting the results for Frances Park since there were only ten respondents in the unaware group (Table 23).

Table 23.--Park awareness by distance from respondent's residence.

Park	No. Subjects		Mean Distance For...			T Value	2-Tailed Probability
	Unaware	Aware	All Subjects N=201	Unaware Subjects	Aware Subjects		
Attwood	147	53	4.2	4.5	3.2	-4.02	.000*
Bancroft	67	133	4.4	5.2	4.0	3.28	.001*
Cavanaugh	111	89	3.3	3.6	2.9	2.72	.007*
Comstock	76	124	3.6	3.7	3.5	0.55	.583
Davis	142	58	4.2	4.5	3.6	2.51	.013*
Fenner	44	156	3.9	4.3	3.8	1.70	.090
Ferris	123	77	3.3	3.4	3.2	0.73	.464
Frances	10	190	3.5	(5.0)	3.5	3.52	.001*
Gier	41	159	4.5	4.7	4.5	0.49	.626
Grand Woods	116	84	6.1	5.9	6.4	-1.56	.121
Hunter	64	136	3.5	3.7	3.4	1.13	.259
Kingsley Place	116	84	3.2	3.1	3.4	-1.18	.241
Moores	25	175	2.9	3.2	2.9	1.24	.218
Munn	166	34	4.5	4.7	3.4	3.66	.000*
Potter	0	201	3.5	..	..	..	..
Riverfront	2	198	3.3	(4.0)	3.3	0.54	.591
Scott Woods	139	61	3.5	3.7	2.9	3.32	.001*
Tecumseh	119	81	4.5	4.7	4.1	2.01	.046*
Washington	50	150	3.0	3.4	2.8	2.57	.011*
All parks			3.8				

The ten parks for which awareness was not related to distance were either parks that were above average in years of operation (Comstock, Ferris, Grand Woods, Hunter, Moores, and Potter) and/or had been publicized to some extent by the local press or by the Lansing Parks and Recreation Department (Fenner Arboretum, Gier, Kingsley Place Community Center, Potter, and Riverfront).[3] This suggests that a park's age and whether it has been publicized affect its awareness levels over space, but firm conclusions cannot be drawn without collaborating evidence from statistical tests.

Since awareness of some parks significantly declined with increasing distance from respondents' homes, the differing personal characteristics of those who were aware and those who were unaware of some of these parks (e.g., Attwood and Scott Woods) may reflect the differing socioeconomic compositions of the neighborhoods immediately surrounding these parks compared to more outlying neighborhoods. Thus in the case of some parks studied in Chapter V, distance may have been an intervening variable in relationships between park awareness and personal characteristics.

Park Knowledge and Distance

Park knowledge was found to be related to distance in the case of only one of the six study parks: Scott Woods (Table 24). Those with low knowledge of Scott Woods, on the average, tended to live farther from this park than those with medium or high knowledge.

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[3]The number of years that each park had been in operation is recorded in Table 1.

Table 24.--Park knowledge by distance from respondent's residence.

| | Mean Distance For... | | | | F Ratio | Sig. |
	All Aware Subjects	Low-Knowledge Group	Medium-Knowledge Group	High-Knowledge Group		
Fenner Arboretum	N=157 3.8	N=35 3.9	N=84 4.0	N=38 3.3	1.75	.178
Scott Woods	N=62 2.9	N=18 (3.7)	N=26 2.5	N=17 (2.9)	3.32	.043*
Gier Park	N=160 4.5	N=33 4.3	N=86 4.6	N=40 4.3	0.43	.653
Frances Park	N=190 3.5	N=42 3.7	N=87 3.5	N=61 3.2	1.84	.162
Potter Park	N=201 3.5	N=51 3.4	N=128 3.6	N=22 3.2	0.66	.516
Riverfront Park	N=199 3.3	N=66 3.1	N=83 3.6	N=49 3.2	1.27	.282

Some caution is required in interpreting these results, however,
since they are based on small sample sizes.

A previous analysis had disclosed that park knowledge was
related to park visitation (Table 9). Based on these findings, it
was hypothesized that the nonexistence of relationships between park
knowledge and distance in the case of most parks could be explained
by the nonexistence of relationships between park visitation and
distance in the case of these same parks. It was also hypothesized
that the relationship between knowledge of Scott Woods and distance
could be explained by the existence of relationships between visita-
tion to Scott Woods and distance.

To test these hypotheses, analyses of visitation by distance
were conducted on the same aware respondents included in the analyses
of knowledge by distance. The results were mixed. Whether an aware
respondent had ever visited a given park was not related to distance
in the case of most parks for which knowledge was found to be unrelated
to distance (Table 25). And whether an aware respondent had recently
visited a given park was not related to distance in the case of all
parks for which knowledge was found to be unrelated to distance
(Table 26). But the expected relationships between visitation and
distance in the case of Scott Woods did not emerge (Tables 25 and 26).

Furthermore, an unexpected relationship between visitation
to Gier Park and distance did emerge. Among aware respondents, those
who had visited Gier Park actually tended to live farther from the
park than those who had not visited it. Yet no corresponding find-
ings had emerged in the analysis of knowledge of Gier Park by distance;

Table 25.--Park visitation among aware respondents by distance from respondents' residences.

Park	Number of...		Mean Distance For...		T Value	2-Tailed Probability
	Aware Nonvisitors	Visitors	Aware Nonvisitors	Visitors		
Fenner Arboretum	22	134	4.3	3.7	1.51	.134
Scott Woods	25	36	3.3	2.7	1.57	.121
Gier Park	42	117	3.6	4.8	-3.27	.001*
Frances Park	18	172	(3.6)	3.5	0.39	.699
Potter Park	4	196	(3.5)	3.5	-0.05	.959
Riverfront Park	32	165	3.5	3.3	0.63	.528

Table 26.--Recent visitors' proximity to study parks compared to other aware respondents.

Park	Number of...		Mean Distance For...		T Value	2-Tailed Probability
	Recent Visitors[a]	Other Aware Subjects	Recent Visitors	Other Aware Subjects		
Fenner Arboretum	46	107	3.5	3.9	-1.29	.200
Scott Woods	15	44	(2.4)	3.1	-1.46	.149
Gier Park	51	106	4.2	4.5	-0.88	.378
Frances Park	98	90	3.3	3.6	-1.09	.275
Potter Park	113	86	3.5	3.4	0.49	.625
Riverfront Park	137	60	3.3	3.4	-0.10	.924

[a]Recent visitors were those who had visited a given park within the last year.

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those with medium and/or high knowledge of Gier Park did not tend to live significantly farther from this park than those with low knowledge of it (Table 24).

Based on these analyses, it can only be concluded that a relationship between park knowledge and distance, or the lack of such a relationship, does not always correspond with the existence or nonexistence of a relationship between park visitation and distance. A more definitive understanding of relationships among park knowledge, park visitation, and distance might have emerged from a two-way analysis of variance with knowledge and visitation as factors and distance as the dependent variable. There were, however, insufficient numbers of cases to permit such an analysis.

Summary

The awareness levels of most parks fluctuated over space. Awareness levels, on the average, declined from 75% among respondents residing within the first 1½-mile distance bands to 55% among respondents residing within the 4½-mile to 6-mile distance bands. Unaware respondents, on the average, tended to live significantly farther from a given park in the case of 9 of the 19 parks studied. These nine parks represented several different park types. But distance was not related to awareness in the case of all parks of a given type. Distance was significantly related to park knowledge only in the case of Scott Woods.

CHAPTER VII

RELATIONSHIPS BETWEEN PARK KNOWLEDGE

AND PARK-VISITATION PATTERNS

In the dicussion on construct validity in Chapter IV, it was
shown that park visitors had higher knowledge levels than nonvisitors.
These findings are consistent with those of McDonald (1969, p. 5) and
Hammitt (1981) and provide additional evidence to support the hypothe-
sis proposed in Chapter I that visitation influences knowledge.

This chapter examines relationships between park visitation
and park knowledge in somewhat greater detail. The first two sections
of the chapter discuss the results of tests that were conducted to
determine whether knowledge declined with the amount of time that had
elapsed since an individual last visited a park and whether knowledge
increased as frequency of visitation increased. The chapter concludes
by incorporating several of the findings discussed in this and other
chapters into a simple model of park-information flow.

The Relationship Between Park Knowledge
and Recency of Visitation

It was hypothesized that knowledge levels had declined with
the amount of time that had elapsed since a respondent's last visit.
Thus it was expected that individuals who had last visited a park
long ago would display lower knowledge levels than individuals who

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had recently visited the park. To test this hypothesis, individuals who had visited a given study park were singled out and divided into two groups: those who had visited the park within the 12-month period before the interview and those who had last visited the park more than 12 months before the interview. The knowledge levels of these two groups were then compared. Knowledge levels were defined using the same procedure followed in Chapter V, except the frequency distribution of knowledge scores for visitors to a given park (rather than all aware respondents) was divided into three groups, representing low, medium, and high levels of knowledge.

The results, shown in Table 27, supported the hypothesis. In the case of each park, nonrecent visitors displayed higher proportions in the low-knowledge categories, whereas recent visitors displayed higher proportions in the high-knowledge category.[1]

Memory lapse is certainly a possible explanation for these results. Also, remarks made by respondents during interviews revealed that some of them correctly recollected the presence or absence of certain features or facilities but responded "don't know" because the length of time that had elapsed since their last visit made them uncertain that the park was the same as it had been on this last visit.

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[1]The "over a year ago" category of visitors admittedly combined a very broad range of responses to the question on recency of visitation. However, when these visitors were more precisely categorized as having visited the park either within the last five years or more than five years ago, similar results emerged and the null hypothesis was again rejected in the case of each park. Combining respondents into a broad "over a year ago" category provided sufficient numbers of respondents so that meaningful percentages could be reported.

Table 27.--Park knowledge by recency of visitation.

Park	Knowledge Level	All Visitors	Last Time Visited		Chi-Square	Sig.
			Within Last Year	Over a Year Ago		
Fenner Arboretum		N=134	N=47	N=87		
	Low	15%	9%	18%		
	Medium	57	49	61		
	High	28	42	21	7.47	.024*
	Totals	100%	100%	100%		
Scott Woods		N=35	N=16	N=19		
	Low	26%	(5%)	(43%)		
	Medium	45	(47)	(44)		
	High	29	(48)	(13)	8.34	.015*
	Totals	100%	100%	100%		
Gier Park		N=116	N=52	N=64		
	Low	27%	13%	38%		
	Medium	55	57	54		
	High	18	30	8	15.30	.001*
	Totals	100%	100%	100%		
Frances Park		N=172	N=99	N=73		
	Low	15%	7%	26%		
	Medium	49	46	54		
	High	36	47	20	18.12	.000*
	Totals	100%	100%	100%		
Potter Park		N=196	N=114	N=82		
	Low	24%	17%	34%		
	Medium	65	68	60		
	High	11	15	6	10.05	.007*
	Totals	100%	100%	100%		
Riverfront Park		N=166	N=138	N=28		
	Low	24%	22%	38%		
	Medium	46	45	53		
	High	30	33	9	7.82	.020*
	Totals	100%	100%	100%		

The Relationship Between Park Knowledge
and Frequency of Visitation

Respondents who had visited a park within the 12-month period before being interviewed were asked to estimate the number of times they had visited the park during this period. It was hypothesized that frequent visits caused knowledge to increase and that, as a result, the frequency-of-visitation data would be highly correlated with knowledge scores. To test this hypothesis, the (uncategorized) knowledge scores of individuals who had visited a given park within the 12 months before being interviewed were correlated with these individuals' estimates of the number of times they had visited the park during this period.

Kendall's tau was selected as an appropriate correlation coefficient because the knowledge scales were ordinal scales and because rank-order correlation coefficients can detect nonlinear relationships. It was anticipated that knowledge may increase with a few initial visits but then level off with continued visits.

The results (Table 28) did not support the hypothesis. Knowledge scores were only weakly correlated with the number of visits, and in the case of the natural areas, the relationship was not even positive in direction. A possible explanation for these results is that some frequent visitors may have had relatively low knowledge if they consistently visited the same part of the park. It is also possible that the data on frequency of visitation were inadequate to effectively test the influence of repeated visits on the development of park knowledge. Since frequency of visitation was measured only for the

Table 28.--Rank-order correlations between park knowledge and frequency of visitation in the last year.

	Fenner Arboretum	Scott Woods	Gier Park	Frances Park	Potter Park	Riverfront Park
Kendall's tau[a]	-.14	(-.06)	.24	.39	.14	.25
N of cases[b]	49	15	54	96	117	132

[a]The tests of significance for Kendall's tau reported by SPSS are meaningful only when there are no ties or relatively few ties (Blalock, 1979, p. 438). Since a large number of ties were involved in these analyses, significance levels are not reported above.

[b]The number of cases reported for these analyses differs from that reported in Table 27 because weighting in SPSS's nonparametric correlation procedures is accomplished through reproducing cases rather than multiplying cases by weighting factors.

one-year period before a given respondent's interview, it is possible
that infrequent visitors during this period could have had high
knowledge levels because they were frequent visitors during the pre-
vious year or series of years and/or because they had been visiting
the park over the course of a relatively long period of time. A
better measure of repeated visits would have been the number of
visits made in the last five years, but obviously it would have been
difficult for respondents to have accurately recalled their behavior
this far into the past. Many respondents had difficulty estimating
the number of visits they made during a one-year period. Still another
problem with these data is that they imply equal amounts of time were
spent during each visit. Yet a person who had made two visits of six
hours each would likely have had more opportunity to learn about the
park's contents than someone who had made two visits of 20 minutes
each. The results of this analysis were considered inconclusive.

A Model of Park-Information Flow

Figure 9 portrays a hypothetical model of what may be termed
"park-information flow." This model illustrates the interrelations
of park awareness, park knowledge, and park visitation. The follow-
ing relationships and processes are suggested in Figure 9. An indi-
vidual can become aware of the existence of a park in a variety of
ways. Once aware of the park, the individual can develop knowledge
of its location and amenities. This might occur immediately upon
becoming aware of the park, as the result of information-seeking
activities, or through haphazardly obtaining information about the

Interpersonal
Communication

Mass Media   feedback loop

Passed By

Group Affiliation

Awareness
of Park

Knowledge
of Park

Visitation
to Park

•memory lapse
•uncertainty that park
 is the same
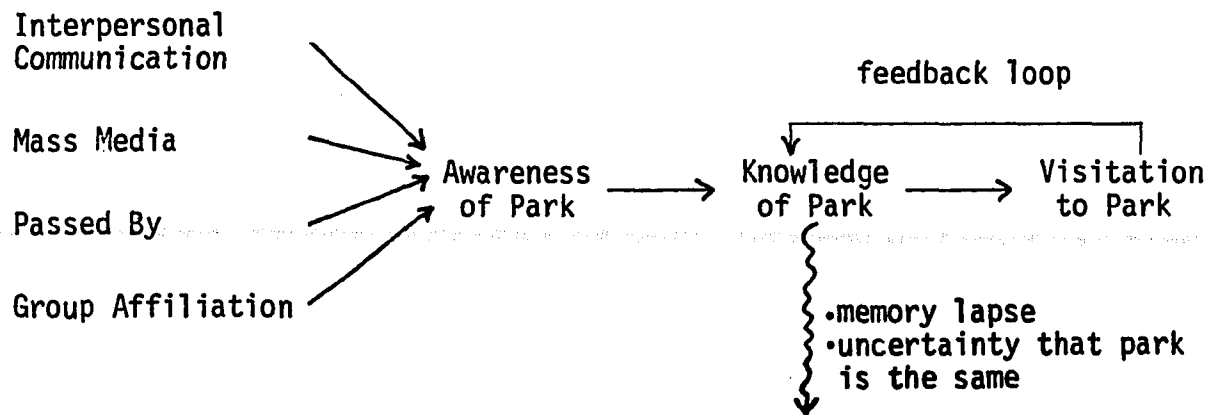
Figure 9.--A model of park-information flow.

park. Once an individual learns of the location of the park and perhaps something of what is available there, visitation can occur. Once the park is visited, knowledge is increased as the individual observes the contents of the park. This increased knowledge may influence subsequent visits, which in turn may further increase knowledge. Once visitation ceases, however, knowledge may decline as a result of memory lapse and less certainty that the park still exists and/or contains the same amenities it did when it was last visited.

An information flow is implied in this model. Information about a park, originating from various sources, flows through formal and informal channels to an individual, who thereby becomes familiar with the park. If the park is visited, the park itself becomes a source of information, which further familiarizes the individual with its location and amenities. Finally, the individual's accumulated information about the park flows from his or her consciousness as time elapses since the individual's last visit to the park.

The model of recreation-site choice, portrayed in Figure 1, represents the multitude of factors that hypothetically underlie an individual's choice of a particular site from among a set of available sites. In contrast, the model in Figure 9 represents the process by which one of these factors—familiarity—increases and diminishes with respect to only one of many alternative sites.

The same process of information flow can, hypothetically, be said to exist for any park. A given individual may be at a different stage in the process of information flow for each alternative site. Thus an individual may be ignorant of one site, may be familiar

with only the location of another site, may have intimate knowledge of yet another site, etc.

These different levels of familiarity may then affect which site the individual visits. An individual may fail to consider a certain site due to his or her ignorance of it, may consider only familiar sites if he or she wants to avoid uncertainty, etc. The combination of the different levels of familiarity with each available site constitutes the familiarity factor in the model of recreation-site choice portrayed in Figure 1.

Support for the Model

Many of the results presented in this and other chapters, as well as some findings presented by other authors, provide a degree of support for this model. However, the model implies a sequence of occurrences, a process. Since these results do not trace changes in the same individuals over time, they only indirectly support the hypothesized relationships. Nevertheless, the model provides a preliminary framework for integrating many of the findings in this and other studies.

The sources of park awareness shown in Figure 9--interpersonal communication, mass media, organizational affiliation, and passing by--were the most frequently cited means by which respondents became aware of the various study parks (Table A6). These various sources apparently do not always create knowledge at the same time they create awareness since some individuals were found to be aware of certain parks but to have no knowledge of them (Figure 5). Thus it seems

reasonable to distinguish awareness and knowledge as two separate stages in the model.

Most aware individuals who had never visited a park did have some knowledge of it (Table 9). This knowledge, not surprisingly, was mostly knowledge that could have been obtained without actually visiting a park, such as knowledge of locations and of publicized features such as the nature center at Fenner Arboretum (Table 29). It seems reasonable for such knowledge to be considered a necessary stage before visitation can occur because an unaccompanied individual must at least know the location of a site before he or she can visit it. But knowledge can apparently be not only a necessary step in a process leading to visitation, but also a causal influence on visitation, as the numerous ex post facto studies and field experiments cited in Chapter I demonstrate. Once one or more visits occur, knowledge increases, as shown by the fact that visitors displayed higher levels of knowledge than nonvisitors (Table 9)--hence the feedback loop portrayed in Figure 9.

It remains to be seen whether the feedback effect portrayed in Figure 9 occurs every time a visit occurs since the analysis of the relationship between frequency of visitation and park knowledge was inconclusive. The other analysis discussed in this chapter, however, provides evidence to support the presence of the last stage of the process portrayed in Figure 9--the decline of knowledge with the passage of time since an individual's last visit to the park. It is also possible that, due to memory lapse, awareness can decline with

Table 29.--Knowledge of specific aspects of study parks among those who had heard of but never visited them.

Fenner Arboretum		Scott Woods		Gier Park		Frances Park		Riverfront Park	
Item	Percentage Answering Correctly N=22	Item	Percentage Answering Correctly N=26	Item	Percentage Answering Correctly N=42	Item	Percentage Answering Correctly N=18	Item	Percentage Answering Correctly N=33
Nature center	63%	Picnic tables (Yes)	16%	Location	33%	Location	(32%)	Location	88%
Location	33	Shuffleboard courts (No)	16	Play equip- ment (Yes)	22	Picnic tables (Yes)	(14)	Picnic tables (Yes)	35
Basketball court(s) (No)	26	Location	10	Basketball court(s) (Yes)	10	Rose garden	(9)	Tennis courts (Yes)	15
Picnic tables (Yes)	19	Tennis courts	10	Shuffleboard courts (Yes)	6	Basketball court(s) (Yes)	(5)	Play equipment (Yes)	10
Tennis courts (No)	19	Small creek crossed by foot bridges	10	Picnic tables (Yes)	4	Tennis courts (No)	(0)	Metal sculpture of an eagle called "The Windlord"	10
Shuffleboard courts (No)	19	Play equip- ment (Yes)	3	Tennis courts (No)	2	Play equipment (Yes)	(0)	Saltshed Amphitheater	7
Play equip- ment (No)	7	Basketball court(s) (Yes)	0	Three lighted ball fields	2	Shuffleboard courts (Yes)	(0)	Sunbowl Amphitheater	5
Sugar bush trail	7							Basketball court(s) (No)	5
Indian garden	0							Shuffleboard courts (No)	3
Firebell	0								

NOTE: Correct answers to facilities quiz items are in parentheses below the item. Potter Park is omitted due to sample-size limitations.

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time before it ripens into knowledge, but there is presently no
evidence to suggest this.

CHAPTER VIII

CONCLUSIONS

This final chapter summarizes and discusses the investiga-
tion's findings, notes some study limitations, and presents sugges-
tions for further research. The summary of results is organized
according to the study's objectives, which were listed in Chapter I.

Summary of Results

Measurement of Park Familiarity

Most respondents had either a low or a moderate level of
overall knowledge about most of the study parks they were aware of.
The reliability of the knowledge scales of individual parks was ade-
quate for making crude distinctions among people's knowledgeabilities,
but it would have been higher had more items been included in them.
There was evidence that these scales possessed both content and con-
struct validity. Knowledge of individual parks was not found to be
cumulative in nature.

On the average, respondents had heard of 11.2 of the 19 parks
listed on the parks list, and they correctly answered 20.2 of the 52
items composing the location, features, and facilities quizzes. The
measures of park-system awareness and park-system knowledge were
found to have acceptable reliability and validity.

Park Familiarity and
Personal Characteristics

Respondents with high awareness of the park system were older, had lived in the Lansing area longer, participated in more resource-based activities, and included a lower proportion of Blacks compared to those with low awareness of the park system. Individuals with high knowledge of the park system, compared to those with low knowledge, were better educated, participated in more resource-based and general activities, and were more likely to be white-collar workers and to reside with children.

Most socioeconomic variables were important correlates of park awareness in the case of natural areas but not in the case of the community or neighborhood parks studied. Individuals with low knowledge of most study parks tended to be either people who had never visited the park or people who had visited it long ago, whereas those with high knowledge tended to be people who had recently visited the park. Respondents with low knowledge of most parks tended to be above average in age, below average in number of recreation activities participated in, and to not reside with children. Those with high knowledge of most parks, in contradistinction, tended to be below average in age, above average in number of recreation activities participated in, and to reside with children.

Park Familiarity and Distance

The awareness levels of most parks fluctuated over space. Awareness levels, on the average, declined from 75% among respondents residing within the first 1½-mile distance bands to 55% among

respondents residing within the 4½- to 6-mile distance bands. Unaware
respondents, on the average, tended to live significantly farther
from a given park in the case of 9 of the 19 parks studied. These
nine parks represented several different park types. But distance
was not related to awareness in the case of all parks of a given type.
Distance was significantly related to park knowledge only in the case
of Scott Woods.

Park Familiarity and
Park-Visitation Patterns

Visitors to parks displayed higher knowledge levels than non-
visitors, presumably because they had actually observed the contents
of parks. Among those who had visited a park, however, those who did
so long ago had lower knowledge levels than those who did so more
recently, perhaps because of memory lapse. The results of analyses
of the relationship between frequency of visitation and park knowledge
were deemed inconclusive.

Study Limitations

Budgetary constraints usually limit the accuracy and appli-
cability of research results, and this study is no exception. Such
constraints necessitated that the sample size be limited to 201
respondents. This caused some analyses to be conducted on a small
number of respondents, particularly analyses related to Scott Woods.
The percentages reported in the latter analyses may not be very
reliable. The statistics indicating the existence or nonexistence
of the overall relationships tested in these analyses can be inter-
preted with more confidence, however.

Another difficulty related to the smallness of the sample size is that it precluded analyses that could have controlled for the possible intervening effects of a third or fourth variable in certain bivariate relationships. It is possible that some of these bivariate relationships were, in fact, affected by intervening variables. Distance, for example, may have intervened in relationships between park awareness and personal characteristics, as noted in Chapter VI. Future investigations with larger sample sizes would permit more sophisticated analyses to be conducted, which in turn would provide deeper insights into how park familiarity is related to other variables.

Budgetary constraints also necessitated three other compromises in the sampling plan: (1) the population of the southern portion of Lansing was undersampled relative to the remainder of the city; (2) respondents within households were selected according to quotas rather than at random; and (3) 12 respondents were interviewed in households not included in the designated sample. None of these procedures, however, is believed to have introduced enough error to cast doubt on the overall conclusions drawn above, for reasons cited in Chapter III.

It is necessary to keep in mind that the results presented in this study are a function of the methods employed to produce them. Somewhat different results may have emerged, for example, if a different sample of parks had been drawn; if "resource-based," "athletic," and "general" recreation activities had been defined differently; and

if the low-, medium-, and high-awareness/knowledge groups had been formed using cutoff points other than the 25th and 75th percentiles.

Somewhat different results may also have emerged if awareness and knowledge had been measured using techniques other than aided-recall and discriminatory testing. Methodological studies comparing the results of various methods of measuring awareness and knowledge are needed to determine the extent to which results vary according to the types of techniques employed. The fact that a few people claimed to have "heard of" a fictitious park on the parks list (Table A1) warrants some additional caution in interpreting results emerging from the use of the aided-recall technique.

Of all the results presented above, those that are in greatest need of validation from future investigations concern awareness and knowledge of the park system. This is because these analyses involve generalizations not only from a sample of people to a population of people, but also from a sample of parks to a population of parks. There was reason to believe that both samples were reasonably representative of their respective populations. Nevertheless, more rigorous conclusions about the nature of the public's familiarity with park systems could be obtained by querying respondents about their awareness and knowledge of each of the parks in a given park system. This would probably require that a city with a smaller park system than Lansing's be selected for study.

Finally, it should be noted that the results of this study may not be universally generalizable to the parks or the populations of other cities. Many of the results suggest that each park possessed

a degree of uniqueness with respect to the types of people that were familiar with it. This in turn suggests that the findings pertaining to any one park may not be generalizable to seemingly similar parks in other cities. Differences in the populations and physical sizes of Lansing and other cities may also inhibit the generalizability of these results. Cities with proportionably larger racial/ethnic minorities, for example, may contain natural areas with lower awareness levels than those in Lansing. Similarly, larger cities with greater intra-urban distances may contain neighborhood parks with lower awareness levels than those in Lansing.

Discussion

The model of recreation-site choice displayed in Figure 1 hypothesized that personal characteristics, distances from residences to parks, and park-visitation patterns were each related to park familiarity. Based on the above findings, it can be generally concluded that each of these relationships existed. But this statement must be qualified to account for the fact that some, but not all, personal characteristics were related to park familiarity; that distances from residences to parks were negatively related to park familiarity in the case of some, but not all, parks; and that some, but not all, patterns of visitation were conclusively found to be related to park familiarity. Thus to assert that personal characteristics, distances from residences to parks, and park-visitation patterns were each related to park familiarity requires that one specify which personal characteristics, which parks, and which patterns

of visitation one is referring to. Moreover, one must also specify which element of park familiarity one is referring to, be it awareness of the park system, knowledge of the park system, awareness of individual parks, or knowledge of individual parks. Thus one general conclusion that can be drawn from this study is that both the concept of park familiarity and the nature of its relationships with other variables are quite complex. This complexity suggests that further research is needed to more fully explain what accounts for variations in people's familiarity with different types of parks.

Suggestions for Further Research

Research is needed on relationships between people's preferences for recreation sites and their familiarity with these sites. Differences in such preferences might explain a great deal about variations in people's familiarity with recreation sites. It is likely that people's preferences for recreation sites influence which sites they visit and thereby become familiar with. And it is also likely that people's preferences for certain recreation facilities within recreation sites influence which facilities they notice and remember.

Many of the results of this study suggest that familiarity with recreation sites is related to site characteristics. These relationships could be identified through analyses of awareness and knowledge levels with recreation sites as the units of analysis and site characteristics as independent variables. A useful "site characteristic" to study in such research would be the amount of publicity

received by a given site as estimated from a content analysis of the mass media.

Longitudinal studies are needed to determine how familiarity with recreation sites changes over time in the case of both individuals and population aggregates. The models proposed in Figures 1 and 9 each imply dynamic processes that can be fully understood only by incorporating the element of time in the research design. One possibility for a longitudinal study would be to draw a sample of new residents of a city or region and trace the changes occurring over time in their familiarity with recreation sites. Within such a study it would be useful to identify the major factors underlying these changes, and the periods in which they took place.

Research is also needed on how the mass media influence people's familiarity with recreation sites. Little is known about the extent to which the mention or discussion of parks in the mass media informs (or ill-informs) the public about parks. And little is known about the extent to which information campaigns using the mass media have been or would be effective in informing people about parks. Several studies have demonstrated that well-designed media campaigns can effectively inform people about a variety of subjects (Douglas et al., 1970; Haefner, 1976; Mendelsohn, 1973; Salcedo et al., 1974), and one study in particular (Allen, 1974) found that newspaper and radio publicity heightened an urban population's awareness of the fact that their park district provided recreation programs. But research is lacking on the extent to which media campaigns can effectively inform people about the locations and amenities of specific

recreation sites. Also lacking is research on exactly how the information disseminated in media campaigns is used in the selection of recreation sites. Investigations of which of alternative media are most effective in informing people about specific aspects of recreation sites would also be useful.

The importance of research on how to effectively inform people about recreation opportunities has been recognized in several studies. More than a decade ago, the National Academy of Sciences (1969) recommended research on "developing an effective communications system to inform recreation users of recreation services and to provide feedback from users to the managers of the activities" (p. 7). In the National Recreation and Park Association's review of policy-related research on urban recreation, research leading to the development of methods for increasing the public's awareness of recreation opportunities was identified as an important research topic by an advisory committee of professionals, educators, and researchers (Verhoven, 1975, p. 15). Similarly, the U.S. Department of the Interior's (1981, p. 18) "National Agenda for Recreation Research" called for the development of approaches for using the media to guide the public to underused recreation areas. Educators, university employees, and certain government employees rated this and related tasks among their first five priorities for needed research.

Future attempts to measure knowledge of individual parks or park systems using the methods employed in this study should include as many items in these measures as possible in order to enhance their reliability and validity. One possibility for increasing the length

of scales would be to quiz respondents on their knowledge of the
policies governing the use of individual parks and/or a park system.
Hayward, Weitzer, and More (1980a, 1980b), for example, tested
respondents on whether a certain park had specific operating hours,
prohibited alcoholic beverages, had a system for reserving picnic
tables and tennis courts, and provided activities for which a fee
was charged.

Finally, there are the two types of investigations mentioned
in the section on study limitations: (1) comparisons of the results
obtained from various methods of measuring awareness and knowledge
and (2) studies that involve querying people about their awareness
and knowledge of each of the parks in a given city's park system.
Questioning people about each of the units in a particular park system
would permit comparison of the correlates of park-system awareness
and park-system knowledge because each measure would represent the
same parks. Such a comparison was not possible in the present study
because the measure of park-system knowledge represented less than
half of the parks included in the measure of park-system awareness.

Clearly a great deal has yet to be revealed about the public's
familiarity with parks. This study shed some light on this phenomenon
by identifying some basic relationships. Future studies will hopefully
build on this foundation and provide deeper insights into the nature,
dynamics, and correlates of park familiarity.

APPENDICES

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APPENDIX A

BASIC DESCRIPTIVE RESULTS

APPENDIX A

BASIC DESCRIPTIVE RESULTS

This appendix presents the basic results that emerged from (1) the parks list; (2) the features, locations, and facilities quizzes; and (3) the question on how people became aware of the study parks. These results revealed which types of parks had the highest awareness and visitation levels, which information sources most frequently led to the discovery of the various study parks, and which park locations, features, and facilities were most widely known among respondents.

Awareness of and Visitation to Parks

Awareness of Parks

The awareness levels for each of the 19 parks listed on the parks list are presented in rank order in Table A1. The awareness levels ranged from 100% for Potter Park to only 17% for Munn Park. Almost half of the park names were recognized by under 50% of the sample. These findings are generally consistent with those of studies cited earlier, which revealed that some people are ill-informed about urban parks.

Not surprisingly, the parks that had the highest awareness levels--Potter, Riverfront, Frances, Moores, Gier, Fenner, Washington, and Hunter--were those that offered major attractions, as indicated

Table A1.--Awareness levels of 19 Lansing parks, in rank order.

| Rank | Park | Percentage of Sample (N=201) That... | | | Total |
		Had Heard of It	Had Never Heard of It	Was Not Sure	
1	Potter Park	100	0	0	100%
2	Riverfront Park	99	1	0	100%
3	Frances Park	95	4	1	100%
4	Moores Park	87	10	3	100%
5	Gier Park	79	16	5	100%
6	Fenner Arboretum	78	20	2	100%
7	Washington Park	75	21	4	100%
8	Hunter Park	68	27	5	100%
9	Bancroft Park	66	27	7	100%
10	Comstock Park	62	34	4	100%
11	Cavanaugh Park	45	46	9	100%
12	Grand Woods	42	52	6	100%
13	Kingsley Place Community Center	42	53	5	100%
14	Tecumseh Park	40	53	7	100%
15	Ferris Park	39	53	8	100%
16	Scott Woods	31	60	9	100%
17	Davis Park	29	67	4	100%
18	Attwood Park	26	65	9	100%
19	Munn Park	17	76	7	100%
20	Hickory Park (fictitious)	5	89	6	100%

in Table 1. The parks with lower awareness levels did not offer such attractions. Stynes (1982) similarly found that the Ingham County parks with the highest awareness levels were those that provided facilities for swimming, a very popular recreation activity.

Bancroft Park had the highest awareness level among parks that did not offer major attractions, perhaps because it was one of the oldest in the park system. Less than a third of the sample had heard of Scott Woods. Davis, Attwood, and Munn Parks--located in the relatively newer, residential south side of the city--had the lowest awareness levels of the 19 parks.

In the case of each park, less than 10% of the sample indicated they were "not sure" about whether they recognized the park name. Five percent of the sample indicated they had heard of the fictitious park on the list ("Hickory Park"). This suggests that the awareness levels for some parks on the list may have been somewhat exaggerated. But since underestimation of park awareness was also possible, due to people being aware of the existence of a park on the list but not recognizing its name, these errors may have to some extent cancelled each other out.[1] Nine of the 11 individuals who indicated that they had heard of "Hickory Park" were male.

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[1] Consequently the 11 individuals who indicated that they had heard of Hickory Park were not eliminated from the sample in deriving the estimated awareness levels reported in Table A1. Another consideration weighing against such a procedure was that these individuals may have provided quite reliable information for some of the parks on the list, particularly those that received fewer "not sure" responses.

Visitation to Parks

The percentage of the sample reporting they had visited a
given park is presented in rank order in Table A2. These results
generally reflect the results in Table A1: Most respondents had
visited the parks with high awareness levels that offered major
attractions, and fewer respondents had visited the more obscure parks
that did not offer such attractions. Less than 8% of the sample indi-
cated they were "not sure" about whether they had ever visited a given
park on the list. Only one respondent indicated he had visited the
fictitious park.

To a degree, the similarity of the results in Tables A1 and
A2 was expected, since people obviously cannot visit parks they have
never heard of. Thus visitation levels must be associated with at
least equivalent awareness levels. On the other hand, it is possible
for people to be aware of parks but never to have visited them.
Table A3 reports what percentage of the respondents aware of a given
park had also visited it. In the case of four parks, less than half
of the individuals who reported being aware of a park had also visited
it. This suggests that lack of knowledge of the locations and ameni-
ties of urban parks, in addition to lack of awareness, may inhibit
park visitation. In Chapter IV the knowledge levels of people who
reported they were aware of certain parks but had never visited them
are documented and compared with the knowledge levels of park visitors.

Table A2.--Visitations levels of 19 Lansing parks, in rank order.

| Rank | Park | Percentage of Sample (N=201) That... | | | Total |
		Had Visited It	Had Never Visited It	Was Not Sure	
1	Potter Park	98	2	0	100%
2	Frances Park	86	13	1	100%
3	Riverfront Park	82	17	1	100%
4	Moores Park	72	25	3	100%
5	Fenner Arboretum	67	31	2	100%
6	Gier Park	59	39	2	100%
7	Washington Park	54	43	3	100%
8	Bancroft Park	48	45	7	100%
9	Comstock Park	45	53	2	100%
10	Hunter Park	32	62	6	100%
11	Grand Woods	31	65	4	100%
12	Ferris Park	25	71	4	100%
13	Cavanaugh Park	22	71	7	100%
14	Davis Park	20	77	3	100%
15	Tecumseh Park	18	76	6	100%
16	Scott Woods	18	77	5	100%
17	Kingsley Place Community Center	18	81	1	100%
18	Attwood Park	11	85	4	100%
19	Munn Park	9	88	3	100%
20	Hickory Park (fictitious)	0	97	3	100%

Table A3.--Visitation levels of 19 Lansing parks among those who had heard of a given park, in rank order.

Rank	Park	Number Who Had Heard of It	Percentage of Those Who Had Heard of the Park That...			Total
			Had Visited It	Had Never Visited It	Was Not Sure	
1	Potter Park	201	98	2	0	100%
2	Frances Park	190	90	9	1	100%
3	Fenner Arboretum	157	86	13	1	100%
4	Moores Park	175	83	14	3	100%
5	Riverfront Park	199	83	16	1	100%
6	Grand Woods	85	74	22	4	100%
7	Gier Park	160	74	25	1	100%
8	Bancroft Park	133	73	23	4	100%
9	Comstock Park	124	73	24	3	100%
10	Washington Park	151	72	26	2	100%
11	Davis Park	58	69	28	3	100%
12	Ferris Park	77	65	31	4	100%
13	Scott Woods	62	59	37	4	100%
14	Munn Park	35	52	48	0	100%
15	Cavanaugh Park	90	50	46	4	100%
16	Hunter Park	137	47	46	7	100%
17	Tecumseh Park	82	46	45	9	100%
18	Kingsley Place Community Center	84	44	55	1	100%
19	Attwood Park	54	40	52	8	100%
20	Hickory Park (fictitious)	11	(8)	(84)	(8)	100%

Knowledge of Park Features

The parks list assessed respondents' awareness of the existence of a sample of parks; the features quiz measured the respondents' knowledge of the contents of selected parks. The results (Table A4) again reflect to some extent the differing awareness levels associated with the parks, since respondents obviously could not identify the park containing a given feature if they were not aware of the existence of that park.[2] The zoo at Potter Park was known to 99% of the sample and was by far the best known feature on the list (Table A4). The canoe rentals and train ride at Potter Park were known to almost three-quarters of the sample.

Only about one-quarter of the sample correctly associated the names of two amphitheaters with Riverfront Park and only 14% correctly associated the Windlord sculpture with this park. These results are rather surprising since 99% of the sample had heard of Riverfront Park and 82% had visited it. Similarly, although 31% of the sample had heard of Scott Woods and 18% had visited it, only 8% associated "a small creek crossed by footbridges" with this park. One might have expected knowledge levels for these items to have been equivalent to visitation levels, assuming that the sample people who had visited a park should also have been able to correctly answer the quiz questions pertaining to that park. But this was not the case. One factor underlying these results may have been memory lapse among park visitors. According to this hypothesis, recent visitors should have

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[2]Table A5 presents results pertaining to knowledge of park features among respondents aware of the park containing a given feature.

Table A4.--Knowledge of selected park features, in rank order.

Rank	Feature	Park Containing Feature	Percentage of Sample (N=201) Whose Response Was...			Total
			Correct	Wrong	"Don't Know"	
1	Zoo	Potter	99	0	1	100%
2	Canoes that you can rent	Potter	74	5	21	100%
3	Train ride	Potter	72	0	28	100%
4	Nature Center	Fenner	68	3	29	100%
5	Rose Garden	Frances	63	10	27	100%
6	Outdoor swimming pool	Moores	57	5	38	100%
7	Outdoor swimming pool	Hunter	52	5	43	100%
8	Artificial ice rink	Washington	39	14	47	100%
9	Sugar bush trail	Fenner	33	1	66	100%
10	Salt Shed Amphitheater	Riverfront	25	4	71	100%
11	Sunbowl Amphitheater	Riverfront	24	2	74	100%
12	Three lighted ball fields	Gier	21	28	51	100%
13	Metal sculpture of an eagle called "The Windlord"	Riverfront	14	2	84	100%
14	Indian garden	Fenner	10	2	88	100%
15	Small creek crossed by foot bridges	Scott Woods	8	13	79	100%
16	Fire bell	Fenner	6	1	93	100%

Table A5.--Knowledge of selected park features among those who had heard of the park containing a given feature, in rank order.

Rank	Feature	Park Containing Feature	Sample Size	Percentage Whose Response Was...		
				Correct	Wrong	"Don't Know"
1	Zoo	Potter	201	99	0	1
2	Nature Center	Fenner	157	86	2	12
3	Outdoor swimming pool	Hunter	137	76	2	22
4	Canoes that you can rent	Potter	201	74	5	21
5	Train ride	Potter	201	72	0	28
6	Rose garden	Frances	190	66	10	24
7	Outdoor swimming pool	Moores	175	65	6	29
8	Artificial ice rink	Washington	151	52	14	34
9	Sugar Bush trail	Fenner	157	42	1	57
10	Small creek crossed by foot bridges	Scott Woods	62	27	13	60
11	Salt Shed Amphitheater	Riverfront	199	26	4	70
12	Three lighted ball fields	Gier	160	26	27	47
13	Sunbowl Amphitheater	Riverfront	199	24	2	74
14	Metal sculpture of an eagle called "The Windlord"	Riverfront	199	14	2	84
15	Indian garden	Fenner	157	13	1	86
16	Fire bell	Fenner	157	8	1	91

displayed higher knowledge levels than less recent visitors. This hypothesis is tested in Chapter VII.

Detailed Results for Study Parks

Information Sources

Those respondents who stated they had "heard of" a given study park were asked how they first found out about it. Since some respondents discovered some parks long ago, the recollections of these individuals may not have been very accurate. The reliability of the results is probably affected to some extent by this problem. The overall patterns that emerged from the data, however, were probably a reasonably good approximation of how people actually discovered the various study parks.

Interpersonal communication of one type or another was the most frequently cited initial source of information in the case of all parks except Riverfront (Table A6). Family members were a particularly prominent initial source of information about Potter Park, which perhaps reflects the zoo's appeal to families.

Other studies have also revealed the prominence of interpersonal communication as a means of discovering recreation sites. Lucas (1970), Lime (1971), and Fisher (1975) each found interpersonal communication to be the most frequently cited initial source of information about campgrounds. The author's analysis of data collected in a survey of Ingham County, Michigan, park visitors (Fritschen et al., 1979) revealed interpersonal communication to be the most frequently cited initial source of information in the case of three of the six parks in the county system.

Table A6.--A comparison of how respondents first found out about each study park.

Sources of Information	Fenner Arboretum N=155	Scott Woods N=59	Gier Park N=157	Frances Park N=189	Potter Park N=201	Riverfront Park N=199
INTERPERSONAL						
Friend(s)	7%	17%	15%	16%	15%	7%
Family member(s)	20	29	14	21	37	6
Co-worker(s); classmate(s)	4	0	3	2	2	2
Other; "word-of-mouth"	6	14	4	5	4	2
Subtotals	37%	60%	36%	44%	58%	17%
MASS MEDIA						
Newspaper	18%	0%	5%	4%	3%	34%
Radio	0	0	3	0	0	5
Television	1	0	0	0	0	5
Unspecified	1	0	0	0	1	6
Subtotals	20%	0%	8%	4%	4%	50%
PASSED BY	13%	22%	12%	18%	7%	26%
GROUP AFFILIATION[a]	2%	4%	19%	11%	0%	2%
SCHOOL FIELD TRIP/ PICNIC	9%	0%	0%	0%	4%	0%
OTHER	12%	4%	11%	6%	8%	1%
DON'T KNOW	7%	10%	14%	17%	19%	4%
Grand Totals	100%	100%	100%	100%	100%	100%

[a]Involvement with groups such as Scouts, Women's Clubs, Jaycees, churches, softball leagues, etc.

Riverfront Park was a major exception to the pattern of discovering parks through interpersonal communication. Mass media was the most frequently cited source of initial information about this park. Half of those aware of Riverfront Park reported discovering it in this manner, which probably reflects the large amount of publicity given to the festivals and celebrations held at this park. The newspaper was apparently the most important type of mass media in informing people about Riverfront Park and each of the other parks.

Compared to the other parks, a higher percentage of respondents discovered Gier Park via affiliation with some organization. This is largely because 13% of these respondents became aware of the park through involvement with a softball league. Some respondents became aware of Fenner Arboretum or Potter Park through a school field trip or picnic. These results suggested that the way people discover a park depends to some extent on its characteristics and the types of activities held there.

Knowledge of Park Locations

Table A7 reports the percentage of individuals aware of a given park who either correctly identified its location on a map (Appendix D) or gave correct driving directions. Less than half (48%) of those aware of Scott Woods were familiar with its location. Almost two-thirds (63%) of those who had "heard of" Gier Park could identify its location. Greater familiarity with locations was evident in the case of Frances Park (76% correct) and Fenner Arboretum (79% correct), and particularly Potter and Riverfront Parks (89% correct each). In general, few wrong answers were given.

Table A7.--Knowledge of study-park locations among respondents who had heard of a given park.

Response	Fenner Arboretum N=157	Scott Woods N=62	Gier Park N=160	Frances Park N=190	Potter Park N=201	Riverfront Park N=199
CORRECT	79%	48%	63%	76%	89%	89%
WRONG	7	15	10	7	9	6
DON'T KNOW	14	37	27	17	2	5
Totals	100%	100%	100%	100%	100%	100%

Table A8.--Knowledge of study-park locations among respondents who had visited a given park.

Response	Fenner Arboretum N=134	Scott Woods N=36	Gier Park N=118	Frances Park N=172	Potter Park N=197	Riverfront Park N=166
CORRECT	86%	75%	74%	81%	89%	90%
WRONG	7	11	8	7	9	6
DON'T KNOW	7	14	18	12	2	4
Totals	100%	100%	100%	100%	100%	100%

It is possible that fewer respondents were familiar with the locations of Gier Park and Scott Woods because, compared to other study parks, smaller proportions of those who had heard of these parks had actually visited them (Table A3). Levels of locational knowledge among just those who had visited these parks (Table A8) are considerably higher and are more comparable to the levels reported for other parks in Table A7.

The familiarity of park visitors with locations was generally quite high, as one would expect, but it is worthwhile to note that it was not universal. This again may have been due to memory lapse, or it may have been due to the fact that some respondents were dependent on the locational knowledge of others when they visited parks.

Twenty percent of the sample lacked the ability to interpret the map.[3] This is a substantial percentage in view of the fact that many cities, including Lansing, use maps as their primary device for informing people about the locations of parks. Other techniques, such as identification of nearby landmarks, would be useful supplements to maps.

Knowledge of Recreation Facilities

In contrast to the generally widespread familiarity with park locations, respondents were much less knowledgeable about whether each of the parks studied "has" or "doesn't have" certain recreation facilities (Table A9). The proportions of correct responses were

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[3]Blacks, Hispanics, and individuals with relatively low educational levels were overrepresented among those lacking map-reading skills.

Table A9.--Knowledge of whether each study park has or doesn't have selected recreation facilities among respondents who had heard of a given park.

Recreation Facility	Fenner Arboretum N=157	Scott Woods N=62	Gier Park N=160	Frances Park N=190	Potter Park N=201	Riverfront Park N=199
TENNIS COURTS	(NO)	(NO)	(NO)	(NO)	(YES)	(YES)
Correct	44%	37%	20%	17%	53%	32%
Wrong	1	3	10	15	16	24
Don't know	55	60	70	68	31	44
Totals	100%	100%	100%	100%	100%	100%
PLAY EQUIPMENT	(NO)	(YES)	(YES)	(YES)	(YES)	(YES)
Correct	22%	23%	45%	75%	92%	36%
Wrong	21	15	6	1	1	17
Don't know	57	62	49	24	7	47
Totals	100%	100%	100%	100%	100%	100%
SHUFFLEBOARD COURTS	(NO)	(NO)	(YES)	(YES)	(NO)	(NO)
Correct	41%	39%	4%	7%	21%	26%
Wrong	0	0	17	26	12	4
Don't know	59	61	79	67	67	70
Totals	100%	100%	100%	100%	100%	100%
PICNIC TABLES	(YES)	(YES)	(YES)	(YES)	(YES)	(YES)
Correct	64%	39%	35%	82%	96%	64%
Wrong	4	5	6	1	1	8
Don't know	32	56	59	17	3	28
Totals	100%	100%	100%	100%	100%	100%
BASKETBALL COURT(S)	(NO)	(YES)	(YES)	(YES)	(NO)	(NO)
Correct	43%	11%	32%	27%	19%	33%
Wrong	0	24	7	16	25	6
Don't know	57	65	61	57	56	61
Totals	100%	100%	100%	100%	100%	100%

NOTE: Correct answers are in parentheses above each column.

generally lower, and the proportions of wrong responses were generally higher.

Picnic tables were the most widely known facilities at five of the six parks. Respondents were generally ill-informed about the presence or absence of tennis, shuffleboard, and basketball courts in each park. Riverfront Park's mass-media exposure may have contributed to its high awareness level, but since these messages did not mention the facilities (or features) available at this park, these amenities were generally no more widely known than those of other parks.

The play equipment and picnic tables at Frances and Potter Parks were more widely known than the play equipment and picnic tables at Gier Park, Riverfront Park, and Scott Woods, perhaps because at these parks they were more extensively provided and more obviously located. Many other factors could have accounted for variations in people's knowledge of recreation facilities, including whether a respondent had ever visited the park and how long ago it was last visited, and whether he or she was interested in the type of recreation provided by a given facility. The extent to which park visitation and recreation participation are related to overall park knowledge is discussed in the text.

Summary

The parks that offered major attractions had the highest awareness and visitation levels. The various features found in the parks varied widely in their notoriety, ranging from an obscure

firebell at Fenner Arboretum to the almost universally known zoo at Potter Park. Interpersonal communication was the most frequently cited initial source of information about all study parks except Riverfront, which was most frequently discovered through the mass media.

The locations of Gier Park and especially Scott Woods were more obscure in the minds of respondents than the locations of the other study parks. Most respondents were generally uncertain as to which parks contained which recreation facilities.

APPENDIX B

SUGGESTIONS FOR INFORMATION DISSEMINATION

APPENDIX B

SUGGESTIONS FOR INFORMATION DISSEMINATION

Some of the results that emerged from this study have impor-
tant implications for the dissemination of information about parks.
This appendix briefly discusses the role of information dissemination
in recreation resource management and then suggests a number of ways
in which certain results could be used to better inform people about
urban parks.

Information and Recreation Resource Management

The importance of better informing people about parks has
been increasingly recognized in recent years. To some extent, this
may be due to a diffusion of marketing concepts to nonprofit organi-
zations in general (e.g., Herron, 1977; Kotler, 1975; Maddalena,
1981) and to park and recreation agencies in particular (e.g.,
Howard & Crompton, 1980; La Page, 1974). The essence of marketing
concepts is that organizations can be more successful by meeting
people's needs. One of these needs is for information, which can aid
them in decision making.

According to several authors (Clark & Stankey, 1979; Merriam &
Knopp, 1976; Worf, 1980), the benefits of better informing people
about recreation opportunities can potentially extend to both recrea-
tionists and recreation resource managers. Recreationists can

potentially benefit by being able to make more informed decisions
about which recreation sites will provide them with the specific
types of experiences they seek. Managers can potentially benefit
from informing recreationists about little-known recreation sites,
as several studies (cited in Chapter I) have demonstrated that this
can divert use from better-known and more heavily used sites. This
diversion of use can result in reduced crowding at the more heavily
used sites, fewer conflicts among different types of recreationists
visiting these sites, and less damage to the physical and biological
resources of these sites. (None of these benefits will accrue, of
course, if a given site or a small set of sites is overpublicized,
since excessive visitation would result. There is less danger of
such negative effects if people are informed of a wide range of oppor-
tunities.)

Suggestions for Information Dissemination

Several research findings, viewed together, indicate that the
efforts of park and recreation agencies to inform people about parks
have not been entirely successful. First, the findings of this and
other studies (cited in Chapter I) demonstrated that the public had
incomplete knowledge of parks. Second, nearly one-third of the
respondents to the Third Nationwide Outdoor Recreation Survey
(Robinson, 1979) affirmed that "lack of information on outdoor rec-
reation areas" had prevented them from using such areas in the past
year. And third, this investigation found that most respondents
discovered most study parks through a variety of informal means

rather than through information disseminated by the Lansing Department of Parks and Recreation (Table A6). Since current and past methods of information dissemination have apparently had limited effectiveness, it would appear that more vigorous and creative efforts should be made to inform people about parks.

Many of the findings of this study suggest a variety of simple ways to heighten the public's familiarity with parks. Perhaps the easiest and least expensive way would be to more widely distribute the maps of the park system that are typically printed by park and recreation agencies, including the Lansing Department of Parks and Recreation. The maps of the Lansing park system are apparently not widely distributed. Maps were given to respondents upon completion of interviews; none of the 128 individuals interviewed by the author indicated either that they had seen the map before or that they already had a copy. One way to more thoroughly disperse these maps would be to distribute them to school children in their classes and ask them to take them home to their parents. Substantial proportions of those lacking in awareness or knowledge of parks were found to reside with children, despite the fact that those with higher park familiarity were generally more inclined to reside with children (Tables 11, 13, 15, and 19). Thus many of the people who might need the information most would be reached.

While wider distribution of maps would be useful, this kind of information about an entire park system should be supplemented with information that does not require map-reading skills, in view of the fact that about 20% of those interviewed in this study lacked such

skills. Maps could be supplemented by written descriptions of the locations of parks in relation to well-known landmarks. Since Blacks, Hispanics, and those with relatively low educational levels were overrepresented among those lacking map-reading skills, the landmarks described should probably be those that are likely to be known to these kinds of people.

Many respondents discovered certain study parks by simply passing by them (Table A6). This informal learning process could be exploited by displaying, near park entrances, signs that succinctly describe the facilities provided within them. Symbols representing the various recreation facilities within a given park could, for example, be displayed below the usual sign displaying the park's name.

It might be beneficial to publicize recreation facilities within parks as well as outside of parks. The fact that those who had visited parks displayed higher knowledge levels than those who had not (Table 9) suggests that a learning process takes place during park visitation. Yet park visitors have apparently not learned all there is to learn about parks because ignorance of park facilities and features was found even among those who had recently visited these sites (Table 27). This, to some extent, may be due to some amenities being located in the less-visible areas of parks. The landscaping inherent to parks probably contributes to the problem. Signs publicizing the less-obviously located facilities in parks would facilitate the learning process that evidently accompanies park visitation.

In addition to signs, maps, and written descriptions of park locations, there are of course the mass media. The media can be used

to remind people of the recreation opportunities available to them and to inform them of changes that have taken place in parks. These functions seem to be important because respondents who had last visited parks long ago were found to be less knowledgeable about them than those who had more recently visited them, suggesting that people are likely to forget about the contents of parks and/or become uncertain as to whether the parks have changed since their last visit (Table 27).

Allen (1974) found that newspaper and radio publicity heightened an urban population's awareness of the fact that their park district provided recreation programs. Park managers who are interested in using the mass media to disseminate information can gain some helpful insights from this study as well as from descriptions of some successful information campaigns on other subjects (Douglas et al., 1970; Haefner, 1976; Mendelsohn, 1973; Salcedo et al., 1974). They can also gain several insights from this study.

The results of this investigation suggest that the design of an information campaign ideally should take account of the differing awareness and knowledge levels of the parks to be publicized. Scott Woods, for example, had a low awareness level (Table A1), and relatively few of those who were aware of it were familiar with its location (Table A7), features (Table A5), or facilities (Table A9). The initial emphasis in publicizing such a park should probably be on making people aware of its existence and familiar with its location. Once this is accomplished, attention could be turned to familiarizing people with the park's features and facilities. A two-step approach

such as this may be more effective than attempting to simultaneously create basic as well as detailed familiarity with this kind of park.[1] Cost considerations, moreover, inevitably limit the duration and size of mass-media messages, which may preclude efforts to communicate a great deal of information through them.

In the case of a park like Riverfront, on the other hand, a direct approach may be feasible. Riverfront Park had a very high awareness level (Table A1), and nearly all those who were aware of it were familiar with its location (Table A7). Knowledge of the features (Table A5) and most of the facilities (Table A9) available at Riverfront Park, however, was low. With such a park there would be essentially no need to inform people of its existence or location; the contents of the park could be immediately publicized.

A few additional comments about the use of the mass media are in order. First, it is sometimes asserted that, to be effective, an information campaign should be targeted at some specific subgroup of a population. In certain situations this approach may be justifiable and beneficial (Mendelsohn, 1973), but effective information campaigns have, nevertheless, been conducted that were not targeted at any particular subgroup (Allen, 1974; Douglas et al., 1970; Salcedo et al., 1974).

Second, managers should be especially careful not to over-publicize natural areas. Often those who visit natural areas are seeking a degree of solitude, which would obviously be impossible in

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[1]This, in fact, would be an interesting hypothesis for researchers to test.

the presence of large numbers of people attracted to such areas as the result of a massive information campaign. Some natural areas, including those studied in this investigation, probably could be publicized somewhat to selected audiences without causing the "social carrying capacities" of these areas to be exceeded, but large-scale information campaigns would likely result in visitation levels that would preclude the very experiences these areas are supposed to provide. Thus in the case of natural areas, it might be best to seek a balance between a highly informed public and a totally ignorant public.

APPENDIX C

QUESTIONNAIRE

APPENDIX C

QUESTIONNAIRE

Dept. of Park & Recreation Resources
Michigan State University
131 Natural Resources Building
East Lansing, MI 48824

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│                              │
└──────────────────────────────┘
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(Do Not Write in Above Space)

URBAN PARK FAMILIARITY SURVEY

Interviewer_____

Date of Interview_____

Respondent's Street Address_____Zip_____

Stratum Number_____   Card Number_____

CALL RECORD

Call Number	1	2	3
Time (AM or PM)			
Date			
Day of Week			
Results			
Interviewer's Initials			

( ) No one 15 or older at home after 3 call-backs
( ) No such address   ( ) Vacant

CODER_____

IF PERSON ANSWERING IS UNDER 15, ASK FOR SOMEONE 15 OR OLDER

     Hi. My name is (NAME OF INTERVIEWER). I'm representing Michigan State University. We're conducting a <u>survey</u> to find out how much people know about and use <u>parks</u> in the area. We recently mailed you this letter (SHOW LETTER) to let you know that this address was randomly selected for our survey. I'd like to come in and ask you a few questions; the interview should take no longer than 20 minutes.

┌──────[COME IN]	┌──────[COME BACK LATER]

Thank you. Your answers will be confidential. I won't ask you your name and your address won't be identified in any way when the results are published. The questions I'm going to ask you deal with parks in the City of Lansing, as opposed to parks in East Lansing, township parks, or county parks.

MAKE DATE FOR A MORE CONVENIENT TIME.
Day: _____
Time:_____

┌──────[REFUSAL]

Thank you anyway. (FILL OUT INFORMATION ON REFUSALS)

A. SELF-RATING OF KNOWLEDGE

A1. First of all, how would you rate your knowledge of parks in the City of Lansing on this scale (HAND R "KNOWLEDGE OF PARKS" CARD), where 10 indicates that you are very familiar with all of Lansing's parks and 1 indicates that you know nothing about any of them? NUMBER_____

B. ACTIVITIES LIST

    O.K., now we'd like a little information about your participation in recreation activities.

HAND R ACTIVITIES LIST AND SAY:

B1. This is a list of recreation activities. For each activity, would you please indicate with check marks whether you didn't participate, participated 1-4 times, or participated more than 4 times since (MONTH OF INTERVIEW) of last year. Your participation may have taken place in Lansing or elsewhere.

IF R PARTICIPATED IN ONE OR MORE ACTIVITIES, ASK:

B1a. Do you feel that you have to travel outside of the city to participate in most of the recreation activities you enjoy, or do you feel that you can participate in most activities within the city?

[OUTSIDE CITY]   [INSIDE CITY]   [SOME IN/SOME OUT]   [D.K.]

ACTIVITY	DIDN'T PARTICIPATE	PARTICIPATED 1-4 TIMES	PARTICIPATED MORE THAN 4 TIMES
Picnicking.	( ).	. . ( ).	. . ( )
Swimming in pools	( ).	. . ( ).	. . ( )
Swimming in lakes or streams. . .	( ).	. . ( ).	. . ( )
Canoeing	( ).	. . ( ).	. . ( )
Fishing.	( ).	. . ( ).	. . ( )
Power boating.	( ).	. . ( ).	. . ( )
Water skiing	( ).	. . ( ).	. . ( )
Tennis	( ).	. . ( ).	. . ( )
Golf.	( ).	. . ( ).	. . ( )
Basketball.	( ).	. . ( ).	. . ( )
Softball or baseball	( ).	. . ( ).	. . ( )
Hiking	( ).	. . ( ).	. . ( )
Bird watching or nature photography	( ).	. . ( ).	. . ( )
Bicycling	( ).	. . ( ).	. . ( )
Camping	( ).	. . ( ).	. . ( )
Shuffleboard	( ).	. . ( ).	. . ( )
Attending outdoor dances, concerts, or plays	( ).	. . ( ).	. . ( )
Ice skating	( ).	. . ( ).	. . ( )
Cross-country skiing	( ).	. . ( ).	. . ( )
Toboganning or sledding	( ).	. . ( ).	. . ( )

C. PARKS LIST

Now we'd like to find out which parks in Lansing people have heard of or visited.

HAND R PARKS LIST AND SAY:

This is a list of some parks in Lansing. For each park listed, please indicate first whether you've heard of it or not heard of it, or that you're not sure. Then, if you've heard of a park, please indicate whether you've visited it, or that you're not sure.

D. FEATURES QUIZ

O.K., now we'd like to find out how much people know about the special features of Lansing's parks. I'm going to read a list of park features. Please tell me which park has each feature.
If you don't know, please just say so rather than guessing.

	CORRECT	WRONG (Specify)	DON'T KNOW
D1. First, which park in the City of Lansing has a zoo?	( )	( )_____	( )
D2. ...a nature center?	( )	( )_____	( )
D3. ...a metal sculpture of an eagle called "the Windlord"?	( )	( )_____	( )
D4. ...a rose garden?	( ).	( )_____	( )
D5. ...a small creek crossed by foot bridges?	( )	( )_____	( )
D6. ...canoes that you can rent?	( )	( )_____	( )
D7. ...the Salt Shed Amphitheater?	( )	( )_____	( )
D8. ...three lighted ball fields?	( )	( )_____	( )
D9. ...an Indian garden?	( )	( )_____	( )
D10. ...an artificial ice rink?	( )	( )_____	( )
D11. ...a train ride?	( )	( )_____	( )
D12. ...the Sugar Bush trail?	( )	( )_____	( )
D13. ...the Sunbowl Amphitheater?	( )	( )_____	( )
D14. ...a fire bell?	( )	( )_____	( )
D15. ...Two parks have outdoor swimming pools. Can you name one of them, or perhaps both of them? H	( )	( )_____	( )
M	( )	( )_____	( )

PARKS IN THE CITY OF LANSING

	HAVE YOU HEARD OF THIS PARK?			IF HEARD OF, HAVE YOU EVER VISITED IT?		
	NO	NOT SURE	YES	NO	NOT SURE	YES
Fenner Arboretum. .	( )	( )	( )	( )	( )	( )
Frances Park. . . .	( )	( )	( )	( )	( )	( )
Gier Park	( )	( )	( )	( )	( )	( )
Potter Park	( )	( )	( )	( )	( )	( )
Riverfront Park . .	( )	( )	( )	( )	( )	( )
Scott Woods	( )	( )	( )	( )	( )	( )
Grand Woods	( )	( )	( )	( )	( )	( )
Moores Park	( )	( )	( )	( )	( )	( )
Bancroft Park . . .	( )	( )	( )	( )	( )	( )
Washington Park . .	( )	( )	( )	( )	( )	( )
Kingsley Place Community Center .	( )	( )	( )	( )	( )	( )
Davis Park.	( )	( )	( )	( )	( )	( )
Hunter Park	( )	( )	( )	( )	( )	( )
Cavanaugh Park. . .	( )	( )	( )	( )	( )	( )
Attwood Park. . . .	( )	( )	( )	( )	( )	( )
Munn Park	( )	( )	( )	( )	( )	( )
Comstock Park . . .	( )	( )	( )	( )	( )	( )
Ferris Park	( )	( )	( )	( )	( )	( )
Hickory Park. . . .	( )	( )	( )	( )	( )	( )
Tecumseh Park . . .	( )	( )	( )	( )	( )	( )

E. FOLLOW-UPS ON STUDY PARKS

O.K. now I'd like to ask some more detailed questions about a few of the parks you have either heard of or visited. I'll be asking you the same series of questions for each park.

IF R HAS HEARD OF FENNER ARBORETUM, ASK:

E1. What would you say is the main attraction at Fenner Arboretum?

_____

[D.K.]

E2. How did you first find out about Fenner Arboretum?_____

_____

_____

[D.K.]

IF R HAS VISITED FENNER	IF R HAS NOT VISITED FENNER
E3. When was the last time you visited Fenner Arboretum? _____ [D.K.] IF VISITED WITHIN LAST YEAR, ASK: E3a. About how many times have you visited Fenner Arboretum within the last year?_____ [D.K.]	E4. Is there anything about Fenner Arboretum that's kept you from visiting it? [YES] [NO] ──▶ GO TO ANOTHER PARK E4a. What is it?_____ _____ _____ _____ _____ [D.K.]

IF R HAS HEARD OF <u>FRANCES PARK</u>, ASK:

E5. What would you say is the main attraction at Frances Park?

_____

[D.K.]

E6. How did you first find out about Frances Park?_____

_____

_____

[D.K.]

IF R HAS VISITED FRANCES	IF R HAS NOT VISITED FRANCES
E7. When was the last time you visited Frances Park?	E8. Is there anything <u>about</u> <u>Frances Park</u> that's kept you <u>from visiting it?</u>
[D.K.]	[YES] [NO]————▶ GO TO
IF VISITED WITHIN LAST YEAR, ASK:	ANOTHER PARK

<table>
<tr><td>E7a. About how many times have you visited Frances Park within the last year?

_____

[D.K.]</td><td>E8a. What is it?_____
_____
_____
_____
_____

[D.K.]</td></tr>
</table>

IF R HAS HEARD OF <u>GIER PARK</u>, ASK:

E9. What would you say is the main attraction at Gier Park?

_____

[D.K.]

E10. How did you first find out about Gier Park?_____

_____

_____

[D.K.]

IF R HAS VISITED GIER	IF R HAS NOT VISITED GIER
E11. When was the last time you visited Gier Park?	E12. Is there anything <u>about Gier Park</u> that's kept you <u>from visiting</u> it?
[D.K.]	
IF VISITED WITHIN LAST YEAR, ASK:	[YES] [NO]———► GO TO ANOTHER PARK
E11a. About how many times have you visited Gier Park within the last year?	E12a. What is it?_____
[D.K.]	_____
	_____
	_____
	[D.K.]

IF R HAS HEARD OF <u>POTTER PARK</u>, ASK:

E13. What would you say is the main attraction at Potter Park?

_____

[D.K.]

E14. How did you first find out about Potter Park?_____

_____

_____

[D.K.]

IF R HAS VISITED POTTER	IF R HAS NOT VISITED POTTER
E15. When was the last time you visited Potter Park?	E16. Is there anything <u>about</u> <u>Potter Park</u> that's kept you from visiting it?

_____   [YES] [NO]————▶ GO TO
[D.K.]   ANOTHER

IF VISITED WITHIN LAST YEAR, ASK: PARK

E15a. About how many times have you visited Potter Park within the last year?

_____

[D.K.]

E16a. What is it?_____

_____

_____

_____

_____

[D.K.]

IF R HAS HEARD OF <u>RIVERFRONT PARK</u>, ASK:

E17.   What would you say is the main attraction at Riverfront Park?

_____

   [D.K.]

E18.   How did you first find out about Riverfront Park?_____

_____

_____

   [D.K.]

IF R HAS VISITED RIVERFRONT	IF R HAS NOT VISITED RIVERFRONT

E19.   When was the last time you visited Riverfront Park?
 	
_____
   [D.K.]
 	
IF VISITED WITHIN LAST YEAR, ASK:
 	
E19a. About how many times have you visited Riverfront Park within the last year?
 	
_____
   [D.K.]
	E20. Is there anything <u>about</u> <u>Riverfront Park</u> that's <u>kept you from visiting</u> it?
	
	[YES] [NO]——▶ GO TO ANOTHER PARK
	  ▼
	E20a. What is it?_____
	
	_____
	_____
	_____
	_____
	   [D.K.]

IF R HAS HEARD OF <u>SCOTT WOODS</u>, ASK:

E21. What would you say is the main attraction at Scott Woods?

_____

       [D.K.]

E22. How did you first find out about Scott Woods? _____

_____

_____

       [D.K.]

IF R HAS VISITED SCOTT WOODS	IF R HAS NOT VISITED SCOTT WOODS
E23. When was the last time you visited Scott Woods?	E24. Is there anything <u>about</u> <u>Scott Woods</u> that's <u>kept</u> <u>you from visiting</u> it?

E23. When was the last time
      you visited Scott Woods?

      _____

       [D.K.]

IF VISITED WITHIN LAST YEAR, ASK:

E24. Is there anything <u>about</u>
      <u>Scott Woods</u> that's <u>kept</u>
      <u>you from visiting</u> it?

      [YES]   [NO]——▶ GO TO
        │   ANOTHER
        ▼   PARK

E23a. About how many times have
      you visited Scott Woods
      within the last year?

      _____

       [D.K.]

E24a. What is it?_____

_____

_____

_____

_____

F. FACILITIES CHART

Now we'd like to find out how much people know about which parks have certain recreation <u>facilities</u>.

HAND FACILITIES CHART TO R AND SAY:

On this chart would you please indicate whether each of these parks has or doesn't have each of these recreation facilities. If you're not sure or if you don't know, please just check the "don't know" box rather than guessing. If you've never heard of one or more of these parks, just skip that row.

G. MAP TEST

O.K., now we'd like to see if people can locate certain parks on a map of Lansing. On this map (HAND MAP TO R) we've shown the major streets of the city, some landmarks in the area, and several parks, which are the green dots with numbers on them. Your residence is located in this area (POINT TO AREA OF RESIDENCE). I'm going to name a few parks in Lansing. Please let me know which dot each park is by telling me the number on it. If you don't know which dot a park is, please just say so rather than guessing.

MENTION ONLY PARKS R HAS HEARD OF

		NUMBER	DON'T KNOW
G1.	Fenner Arboretum?	_____	( )
G2.	Frances Park?	_____	( )
G3.	Gier Park?	_____	( )
G4.	Potter Park?	_____	( )
G5.	Riverfront Park?	_____	( )
G6.	Scott Woods?	_____	( )

RECREATION FACILITIES

PARK	Tennis Courts			Playground Equipment			Shuffleboard Courts			Picnic Tables			Basketball Court(s)		
	Has	Doesn't Have	Don't Know	Has	Doesn't Have	Don't Know	Has	Doesn't Have	Don't Know	Has	Doesn't Have	Don't Know	Has	Doesn't Have	Don't Know
Fenner Arboretum	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
Frances Park	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
Gier Park	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
Potter Park	( )	( )	( )	( )	( )	( ) ·	( )	( )	( )	( )	( )	( )	( )	( )	( )
Riverfront Park	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
Scott Woods	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )

(G. DRIVING DIRECTIONS OPTION)

INTRODUCTION

If it would be easier for you to simply tell me how you would get to certain parks, we can do that instead of using the map.

ASK QUESTIONS ONLY IF R HAS HEARD OF THE PARK.

STUDY PARK	Do you know where (NAME OF PARK) is located? NO	YES	IF YES, Could you tell me how you would get to (NAME OF PARK?)
Fenner Arboretum	( )	( )	_____ _____ _____
Frances Park	( )	( )	_____ _____ _____
Gier Park	( )	( )	_____ _____ _____
Potter Park	( )	( )	_____ _____ _____
Riverfront Park	( )	( )	_____ _____ _____
Scott Woods	( )	( )	_____ _____ _____

H. PERSONAL INFORMATION

We've come to the final section of the interview. In this section we'd like to ask some general questions about yourself. We need this information in order to know which types of people are more or less familiar with which parks.

H1. First, how long have you lived at this address?_____

HAND R CITIES AND TOWNSHIPS LIST AND ASK:

H2. Have you ever lived at some other address in one or more of the cities or townships on this list?

[YES]   [NO] ─────────────▶ GO TO H3.

[N.R.]

H2a. If we define "the Lansing area" as these cities and townships, how long would you say you've lived in "the Lansing area" altogether?_____ [N.R.]

H2b. Have you ever lived at another address in one of these cities or townships for a longer period of time than you've lived here?

[YES]   [NO] ─────────────▶ GO TO H3.

[N.R.]

H2c. What is the address of the former residence that you lived in for the longest period of time?

Street_____

City or Township_____ [N.R.]

H2d. How long did you live there?_____ [N.R.]

H3. How old were you on your last birthday?_____ [N.R.]

H4. How many other people live in this household?_____ [N.R.]

H5. Do any children under 15 live in this household?

[YES]   [NO] ─────────────▶ GO TO H6.

H5a. How many?_____ [N.R.]

H5b. What age(s)?_____ [N.R.]

H6. Are you working at present?

| YES | | NO | N.R. |

H6a. What sort of work do you do?

_____

_____

N.R.

PROBE IF NECESSARY:

H6b. What kind of (business/ industry) is that?

_____

_____

N.R.

H6c. Where do you work?

_____

_____

N.R.

H6d. How long have you worked there?

_____

N.R.

H6e. Are you temporarily laid off, unemployed, a home-maker, a student, or what?

| TEMPORARILY LAID OFF | DISABLED |

| RETIRED | HOMEMAKER |

| STUDENT | UNEMPLOYED |

H6f. Where do you go to school?

_____

_____

N.R.

H7. What is the highest level of education you have completed? N.R.

GRADES OF SCHOOL   UNDERGRADUATE SCHOOLING

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | 13 | 14 | 15 | B.A. or B.S. |

GRADUATE DEGREES

| M.A. or M.S. | | M.D., D.D.S., L.L.D. or other professional degree | | Ph.D. |

H8. Where do you usually obtain information about Lansing's parks?

_____

_____

| D.K. | | N.R. |

That's all the questions I have.

GIVE PARK INFORMATION TO R

Thank you very much for your time and cooperation.

_____

RECORD R's SEX: | MALE | | FEMALE |

RECORD R's RACE: | WHITE | | BLACK | | HISPANIC | | ORIENTAL |

| OTHER (Specify) |

_____

THUMBNAIL SKETCH AND OTHER COMMENTS:

APPENDIX D

MAP USED IN PARK-LOCATION QUIZ

APPENDIX D

MAP USED IN PARK-LOCATION QUIZ
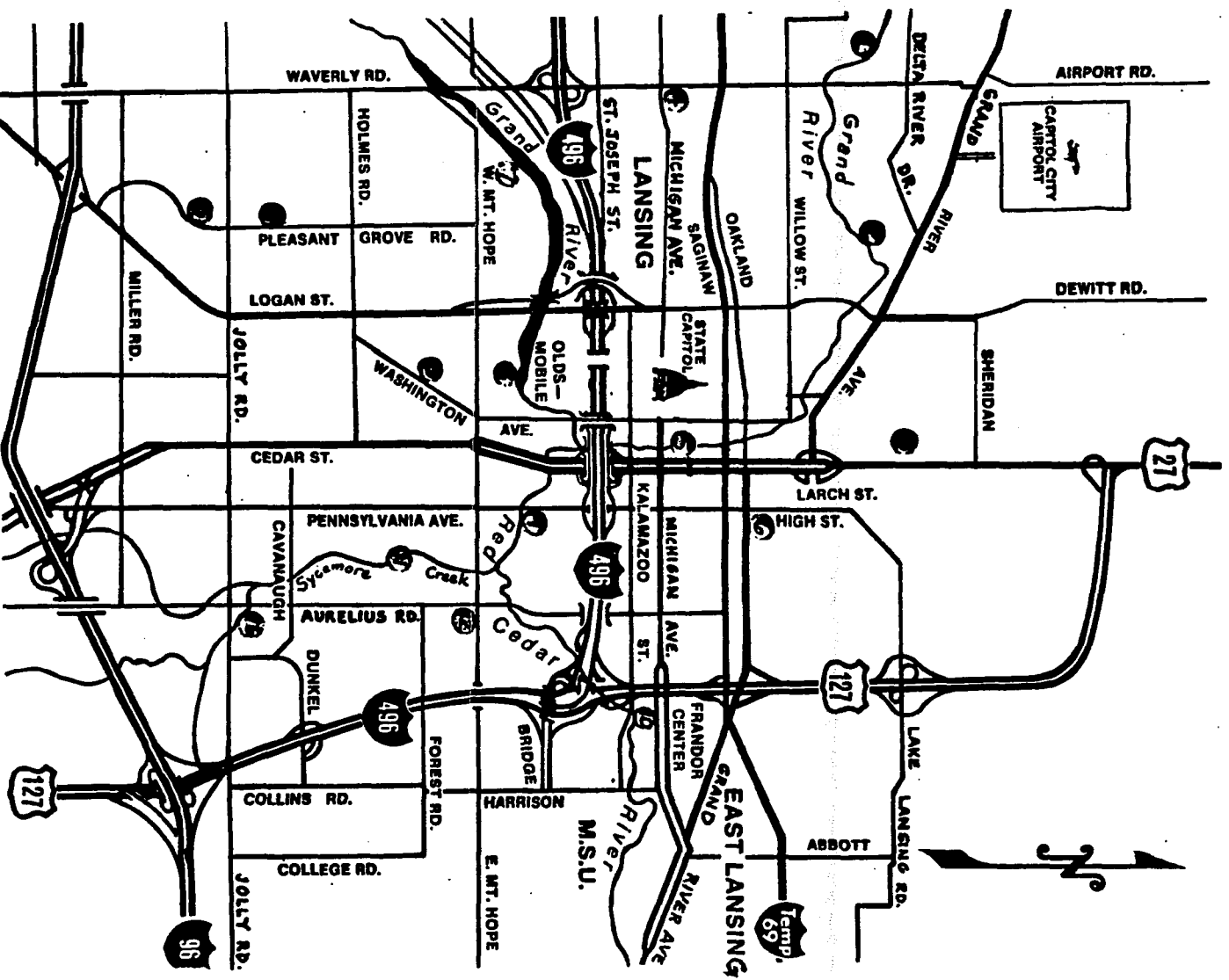
APPENDIX E

ADVANCE LETTER

APPENDIX E

ADVANCE LETTER

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF PARK AND RECREATION RESOURCES   EAST LANSING · MICHIGAN · 48824
NATURAL RESOURCES BUILDING

Dear Residents,

As a graduate student at Michigan State University, I am conducting
a survey of Lansing residents on the subject of city parks. The
results of the survey will help the Lansing Parks and Recreation
Department to better serve the public's recreation needs.

Your address was randomly selected from the Lansing City
Directory for inclusion in this survey. Within the next week,
an interviewer from Michigan State University will visit your
residence to request an interview with an adult member of the
household.

You should find the interview both interesting and informative.
The interviewer will leave some information about the Lansing
park system with you for your future use. The interview will
only take about 20 minutes of your time. Your participation
in this study is important regardless of how much you use the
parks. I would greatly appreciate your cooperation.

This letter serves to alert you to the survey so that when the
interviewer arrives you will know that he/she is associated with
a legitimate study. The interviewer will identify himself/herself
as a representative of Michigan State University in conjunction
with the Lansing Parks Survey.

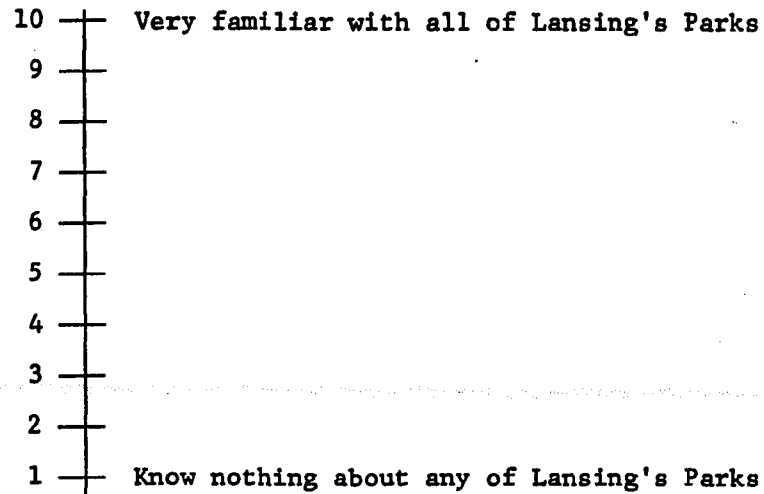Thank you very much for your cooperation.

Sincerely yours,

Daniel M. Spotts
Research Assistant

APPENDIX F

CARDS SHOWN TO RESPONDENTS

CARDS SHOWN TO RESPONDENTS

KNOWLEDGE OF PARKS IN THE CITY OF LANSING

```
10 ──┼── Very familiar with all of Lansing's Parks
 9 ──┼──
 8 ──┼──
 7 ──┼──
 6 ──┼──
 5 ──┼──
 4 ──┼──
 3 ──┼──
 2 ──┼──
 1 ──┼── Know nothing about any of Lansing's Parks
```

CITIES AND TOWNSHIPS IN THE LANSING AREA

CITIES	TOWNSHIPS
Lansing	Meridian
East Lansing	Delta
Okemos	Delhi
Haslett	Lansing
Holt	Windsor
Dimondale	Waterton
Dewitt	Dewitt
Bath	Bath
Waucosta	Alaiedon

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LITERATURE CITED

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