An exploratory analysis of the substitutability of outdoor recreation activities

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An exploratory analysis of the substitutability of outdoor recreation activities

by

James Earl Christensen

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INTRODUCTION

Resource management efforts have traditionally been concerned with market resources such as timber, water, and minerals (Moss et al., 1969). "The greatest good for the greatest number" (Pinchot, 1968:41) has often been a guiding principle in the management of market resources. More recently recreation managers have realized that nonmarket resources, such as the quality of recreation experiences, also may be important resources to manage. "The greatest good for the greatest number" (Pinchot, 1968:41) also has been a principle used to guide the management of nonmarket resources. Recreation managers have attempted to provide maximum quality recreation experiences for a maximum number of recreationists (Butler, 1967). Maximizing the quality of recreation experiences for the greatest number of recreationists has become increasingly difficult because of the relatively short supply of resources needed to provide an adequate number of recreation facilities. Recreation managers have found that "within the last few years, the tidal wave of outdoor recreation activity has threatened to engulf the resource" (Moss and Lamphear, 1970:129). The supply of resources available to recreation managers for meeting the "... tidal wave of outdoor recreation activity" (Moss and Lamphear, 1970:129) has been declining relative to demand. "Recreation capacity of many areas is shrinking in the face of competing uses of land..."
land such as highways and urbanization, and . . . such competing uses are growing rapidly" (Manning, 1968:2). If resource supply cannot meet demand for recreation activities, decisions must be made as to which recreation experiences will be provided, and which recreation activities will not be provided, with the scarce resources available. The recreation satisfaction could decline for recreationists who find that their recreation activity was not one of those activities offered at a particular recreation facility. Regardless of the quality of the facility at which a few select activities was provided, the maximum number of recreationists would not be served. Given this resource supply problem, "managers have demanded answers and research goals have reflected this need" (Moss and Lamphear, 1970:129).

Recent interest in the sociology of leisure has centered around two concepts; "activity types" (Burton, 1971) and "substitutability" (Hendee and Burdge, 1974) of recreation activities within activity types. "Activity types" have been conceptualized as clusters of recreation activities which share general characteristics (Hendee et al., 1971; Yoesting, 1974). Activities with common characteristics may be "substitutable" for each other with little loss in satisfaction (Hendee and Burdge, 1974). The managerial implications of the research on "activity types" and the "substitutability" of recreation activities appears encouraging. Assuming that high quality
recreation experiences were possible at developed recreation sites, facilities offering a few selective activities, instead of many, may be developed that would provide satisfaction to participants that was similar to the satisfaction that may have been derived from activities not provided (Hendee and Burdge, 1974). Fewer resources, such as land, may be necessary to serve the maximum number of recreationists if activities are substitutable in terms of satisfaction.

Basing the development of recreation facilities on the available research concerned with "activity types" and the "substitutability" of recreation activities, however, would be premature. Because of the relative recentness in which it has been a focus of interest, "activity types" and "substitutability" research "... is suggestive rather than conclusive" (Hendee and Burdge, 1974:161). Many theoretical and empirical questions need to be researched before recreation policy could be based on the concepts of "activity types" or "substitutability."

Perhaps the most general theoretical and empirical question yet to be answered is "would a managerial policy of developing recreation facilities based on the 'activity types' or 'substitutability' concepts serve the maximum number of recreationists?". More specific questions are related to this general question. The objective of this research is to provide rudimentary answers to these questions. Specifically, the objectives of this research are:
1. To determine how many recreationists within defined activity types can substitute recreation activities for each other with similar satisfaction. If recreationists who participate in activities within a particular activity type cannot substitute the activities with similar satisfaction, the objectives will be:

2. To determine the characteristics which distinguish the group of recreationists who can substitute recreation activities within an activity type with similar satisfaction from the group of recreationists who cannot substitute recreation activities with similar satisfaction.

3. To determine if the characteristics which distinguish the group of recreationists who can substitute recreation activities with similar satisfaction from the group of recreationists who could not, are the same characteristics for all activity types.
"Activity types" and "substitutability" research has been a practical extension of research related to recreation correlates. The determination of correlates to participation in recreation activities has been a major concern in the sociology of leisure (Berger, 1963; Christensen and Yoesting, 1973). Often these correlates have been personal characteristics such as age, education, and occupation. At other times the correlates to recreation participation have been factors such as childhood experiences, friends' recreation activities, or amount of time available for recreation. Further, the Outdoor Recreation Resources Review Commission (1962d:4) stated that "... there are predetermined characteristics of the recreation activity which condition participation in it." These "predetermined characteristics of recreation activities" must be compatible with the correlates to recreation activity before an individual will participate in recreation pursuits. The elderly, for example, usually do not participate in the more strenuous recreation activities such as hockey since their age prohibits such participation (Outdoor Recreation Resources Review Commission, 1962d; Hendee et al., 1971; Baley, 1955; Buhler, 1961).
Recent research (Hendee et al., 1971; Yoesting, 1974) has attempted to determine the correlates of types of activities that share "predetermined characteristics . . . which condition participation . . ." (Outdoor Recreation Resources Review Commission, 1962d;4). Correlates to participation in each "activity type" are often the same variables which are related to participation in specific activities (cf. Outdoor Recreation Resources Review Commission, 1962d; Hendee et al., 1971; Yoesting, 1974).

Studies which have examined the correlates to recreation behavior will be examined in this review of literature. Studies which have explored the correlates to participation in "activity types" will provide the foundation for the problem of this research. It is recognized that many of the correlates to participation in recreation activities are themselves inter-correlated. The review of literature will proceed, for analytical purposes, as if the correlates to recreation participation are orthogonal.

Socioeconomic Correlates to Participation in Recreation Activities

The personal characteristics of recreationists most commonly related to recreation behavior have been socioeconomic variables (Berger, 1963; Christensen and Yoesting, 1973). Many examples exist in the literature which have related social class, age, education, occupation, and income to outdoor
recreation pursuits.

Social class

Bengston and Lovejoy (1973:880) have noted that "... social location influences values, and values in turn influence psychological states or behavior." Leisure values, and consequently leisure behavior, would vary according to social position.

White (1955) systematically analyzed the relationship between social class and the use of leisure time. The home was the most frequently used setting for leisure involvement, with commercial settings second, for the upper classes. The upper classes, relative to the lower classes, were much less involved in community provided facilities, such as parks and playgrounds.

Havinghurst (1957) conducted a study with the objective of relating leisure values to social class. Only minor differences in life style, in relation to sex and age, existed among respondents. The major differences in life style were among social classes. Furthermore, each life style had its characteristic leisure style which was a configuration of leisure activities in which the individual was engaged. Thus, social class differences in life style led to social class differences in leisure activities.
A person's age must be compatible with the characteristics of an activity before participation in that activity will occur. The Outdoor Recreation Resources Review Commission (1962d:5) observed:

For the more physically demanding activities, it is expected that participation will decline with increasing age. Conversely, activities which are not physically demanding, may be expected to maintain participation levels throughout all age groups, except perhaps the oldest age groups.

Baley (1955), Montoye et al. (1959), Briggs (1958), and Buhler (1961) reported that participation in individual activities with particular characteristics was related to age. They concluded that those activities in which participation declined with age 1) required quick reaction time, 2) physical stamina and endurance, and 3) satisfied erotic impulses. Many of the activities in outdoor recreation fit into one of those categories.

Hendee et al. (1971:31) stated that "aging is accompanied by declining physical stamina and a consequent reduction of more strenuous outdoor activities." But in addition (Hendee, 1971:31):

. . . age implies something about the social independence of the recreationists. Recreationists over 50 are less likely to be bound by the needs of small children. Further, to the extent that it reflects a stage in one's occupational career or work pattern, age may reflect discretionary income available for outdoor recreation. Perhaps most important, age
reflects the position of an individual in the development of his society. Older recreationists' tastes and preferences may be influenced by early camping experience in tents, rather than trailers, and hiking many miles over land now webbed with all-weather roads.

Consequently, age-graded leisure tastes and pursuits would be expected. Figure 1 represents Hendee et al. (1971) conception of the relationship between age and types of recreation activities.

Owens (1970) observed that horseback riding, golf, hunting, and fishing were not participated in during the early and later years of a person's life as much as in the middle years. The Outdoor Recreation Resources Review Commission (1962a; 1962d), Burdge (1967), McCurdy and Miller (1968), and Myles (1969) also reported that participation in different types of recreation activities was related to age.

**Education**

Education has been another dimension of social location related to one's choice of leisure pursuits. Neulinger (1974: 97) observed that:

> Certain avenues of both work and leisure remain closed to those with little formal education. Thus, not only is a college degree required for many positions in government and industry, but equally a college background is necessary to give the person access to certain social circles which in turn determine his life and leisure style.

Education introduces an individual to a circle of friends who in turn introduce the individual to particular types of
Figure 1. Hypothetical changes in activity preference with age

Source: Hendee et al. (1971:32)
recreation activities.

Hendee et al. (1971) argued a little differently. "General values, perhaps acquired earlier but apparently reinforced by complete college education and subsequent graduate education, seem to lead to a preference . . ." (Hendee et al., 1971:33) for certain recreation activities. It is not "whom you know" (Neulinger, 1974) as a result of one's education and their values that influence recreation choices, but the reinforcement of personal values, which education provides, that leads to recreation choices. Hendee et al. (1971), for example, noted that recreationists participating in activities dependent on appreciation of the natural environment were more highly educated than participants in other types of recreation pursuits. "Comparison of activity preference types with education confirmed such a relationship indicating that highly educated recreationists are more likely to prefer appreciative-symbolic activities" (Hendee et al., 1971:32) such as hiking and mountain climbing. Burch and Wenger (1967), Hendee et al. (1968), Lucas (1964), Outdoor Recreation Resources Review Commission (1962e) and Reid (1964) also reported a relationship between education and the nature appreciation type of activities.

Choices of activities, other than nature appreciation type activities also has been related to education. Kittle et al. (1965), Sendak and Bond (1970), Owens (1970), Garrett (1970),
Figure 2. Hypothetical changes in activity preference with age and education

Source: Hendee et al. (1971:32)
Burdge (1967), and the Outdoor Recreation Resources Review Commission (1962a) found that as the level of education changed, the frequency and kind of recreation changed.

**Occupation**

Occupation is important to recreation choices because of its effect on psychological functioning. Kohn and Schooler (1973) stated that their findings (Kohn and Schooler, 1973: 117):

> . . . provide some insight into the processes by which occupational experience affects psychological functioning. The findings argue for a generalization model, in contrast to a reaction-formation or compensatory model . . . . That is, the specific links between particular occupational conditions and particular facets of psychological functioning suggest that men's ways of coping with the realities of their jobs are generalized to nonoccupational realities. Men whose jobs require intellectual flexibility, for example, come not only to exercise their intellectual prowess on the job but also to engage in intellectually demanding leisure-time activities.

This "familiarity hypothesis" (Burch, 1969) asserts that occupational skills and orientations carry over into one's leisure pursuits. Since different occupations require varying skills and create different attitudes, they would be associated with participation in different leisure activities.

The "compensatory hypothesis" (Burch, 1969) contradicts the "familiarity hypothesis." Leisure pursuits are chosen according to their ability to compensate for felt inadequacies of one's occupation. Occupations have different shortcomings.
Consequently, leisure behavior would vary for different occupations. Both the "familiarity" and "compensatory" hypotheses suggest that participation in different leisure activities is related to different occupations.

Sillitoe (1969) found that employers, managers and professional people watched only half as much television, but participated nearly twice as often in physical recreation, as semi-skilled and unskilled manual workers. Parker (1971:60) also noted:

Among employers and managers eighteen percent play golf, compared with less than five percent in the manual groups. Soccer is predominantly the game of manual workers, while cricket is more popular among the non-manual. Soccer is on the whole a rougher and tougher sport than cricket and may fit in better with a manual worker's idea of what is a manly sport. It is also a sport requiring closer co-operation between members of a team, reflecting more the content of working-class occupations than of individualistic middle-class occupations.

Gerstl (1961) found that college professors participated in different recreation activities than admen and dentists. Dentists and admen spent more of their leisure time with their children, at home, and on sport and professional organizations than college professors.

The amount of activity involved in leisure pursuits has appeared to be related to occupational prestige. Clarke (1956) concluded that "spectatoritis" occurred most often at the middle level of occupational prestige while Graham (1959) reported
that the proportion of professional workers participating in strenuous exercise was nearly twice that of unskilled workers.

Reissman (1954) found that those individuals in higher class positions were more active and diverse in their social participation than those individuals in lower classes. The middle class tended to dominate the organizational activity of the community. This finding was supported by Defee et al. (1974).

Burdge (1967) also found that occupational prestige was related to participation in more types of recreation activities. Relevant findings included:

1. Persons with occupations of high prestige participated in all types of leisure more than people with low prestige occupations.
2. Persons with high prestige occupations participated more in outdoor recreation activities than people with low prestige occupations.

Researchers (Outdoor Recreation Resources Review Commission, 1962a; Garrett, 1970; Owens, 1970; Sendak and Bond, 1970; Kittle et al., 1965; Johnson and Christiansen, 1969; McArthur et al., 1971; McCurdy and Miller, 1968; Christensen, 1972) have conducted descriptive studies relating occupation to outdoor recreation. Considering outdoor recreation as a type of activity per se, these authors have observed that outdoor recreation is largely a leisure activity of those individuals
in higher prestige occupations.

Income

Income also has been a correlate of participation in particular recreation activities. Income per se has not been of interest but rather the social class position reflected by income (Outdoor Recreation Resources Review Commission, 1962e). "... income differences reflect to some extent social class differences in life-styles and interest patterns" (Outdoor Recreation Resources Review Commission, 1962e:10). Differences in income, as a consequence, should be related to differences in leisure pursuits.

Although Owens (1970) reported that overall, those individuals with a higher income participated in outdoor recreation more than those individuals with low income, other studies have indicated that this relationship varies with the particular activity. McArthur et al. (1971) stated that vacationers to the north-central New Mexico area were primarily those with a higher than average income. Burdge (1967) provided similar results in his study of Pennsylvania vacationers. Finally, Owens (1970) stated that golfers were primarily from the upper income bracket. The Outdoor Recreation Resources Review Commission (1962e), Sendak and Bond (1970), Garrett (1970), and Owens (1970), however, concluded that hunting and fishing were activities participated in as much by individuals with a low income as by those individuals with a high income.
Furthermore, Owens (1970) reported that income was not an important factor for participation in power boating and picnicking. Income has been an important factor in determining participation in some types of recreation activities and not others. These results may be explained by the fact that income per se is not of importance. Rather, the social position reflected by income is important in determining recreation pursuits of recreationists. "... as people shift into higher income brackets they need not immediately adopt the leisure time patterns of people in that income class unless money itself is the conditioning factor" (Outdoor Recreation Resources Review Commission, 1962e:10). Although a recreationist may experience social mobility, he may still maintain previous recreation interests.

Socioeconomic variables have influenced participation in different recreation activities because of the underlying dimensions which they represent. Age, education, occupation, and income have an influence on which recreation activities can be participated in, or are desirable to recreationists.

Childhood Experiences and Participation in Recreation Activities

Although socioeconomic characteristics may enhance or limit participation in different recreation activities, other personal characteristics also are important. One such characteristic is the knowledge of skills which are often pre-
requisites to participation in different recreation activities. Skills required in adult recreation activities have often been acquired during childhood. The Outdoor Recreation Resources Review Commission (1962f:57) stated:

A skill once learned remains very much intact. A predominant interest persists and although it may lie dormant for a few decades, it will reassert itself on demand. The work of youth organizations in teaching outdoor skills takes on more importance when it is realized that in the early years lifetime interests are established.

The acquisition of necessary skills for later recreation participation is not the only reason childhood experience influences recreation patterns. The Outdoor Recreation Resources Review Commission (1962a:137) stated that "... once a person has acquired experience with an activity, he is more likely to continue as he grows older than people who do not engage in this activity in their youth."

Similarly, Murphy (1954:611-612) stated:

The process is one of progressive increase in the strength of the association between a specific object and a specific type of satisfaction, so that in subsequent behavior the satisfaction is sought by pursuing this particular object rather than some other object which might serve the drive just as well . . . .

We can be depended upon, year after year to cling to much that we have learned to love, and likewise to maintain the aversions and avoidance of an earlier period . . . . There is a great deal of self-stimulation, a great deal of continuity, in the pattern of acquired tastes, which maintains itself without outer reinforcement, and indeed often in defiance of very great external pressures.
In the leisure study field, these remarks suggest that when given the freedom to dispose of free time, the individual will seek activities which continue his familiar routines (Burch, 1969).

Yoesting and Burkhead (1973) studied the effect of childhood experiences on recreation patterns. There was a direct relationship between the level of participation in recreation as a child and as an adult. Further, childhood outdoor recreation activities were an important predictor of adult recreation activities in that approximately 40 percent of the 35 activities were participated in similarly during childhood and adult life.

Sofranko and Nolan (1972) reported similar findings with a smaller sample of recreation activities. Hunting and fishing as a youth was an important determinant of participation in hunting and fishing as an adult.

Kelly (1974) examined the relationship between adult recreation activities and childhood recreation activities. Half of the childhood activities also were participated in as an adult. These results, as well as the results of the Yoesting and Burkhead (1973), Christensen (1972), Sofranko and Nolan (1972), and Christensen and Yoesting (1973) studies indicated that "... recreation preferences arise out of ... experiences" (Ferriss, 1970:47).
The time that an individual has to recreate will influence the types of activities in which he will participate (Outdoor Recreation Resources Review Commission, 1962d; Clawson, 1974). Indeed, time may be more of a limiting factor than such variables as income (Clawson, 1974).

Although availability of time for recreation is not a new variable, the effect of time availability on recreation pursuits has received renewed interest because of the emergence of the "4 day-40 hour" concept. Four day-forty hour work weeks would allow for larger blocks of time available for leisure. Consequently, participation in more time consuming recreation activities would be possible (Outdoor Recreation Resources Review Commission, 1962d; Clawson, 1974). "... increased leisure on an annual basis, and especially longer periods of leisure at longer intervals, would provide greater opportunities for travel, education, public service, and other activities as well as for sheer play" (Clawson, 1974:13).

The report of the Outdoor Recreation Resources Review Commission (1962e) indicated the importance of time availability to recreation pursuits. Of the respondents who indicated that they did not participate in outdoor recreation to their desired extent, half stated that the lack of time was the reason for their less than desired participation. "All
other explanations appear much less prominently than the complaint 'not enough time'" (Outdoor Recreation Resources Review Commission, 1962e:7).

Faunce (1963) studied automobile workers who were working five days a week. The workers were asked to speculate what they would do if they could have a four-day work week. Many respondents indicated that they would increase their participation in outdoor recreation.

Increased participation in recreation, due to more time available made possible by a 4 day-40 hour work week, also was reported by McEvoy (1974). General conclusions were that, of those individuals on a 4 day-40-hour work week (McEvoy, 1974: 135-136):

1. approximately 50 percent of the work force would contribute 100 percent of the total change in demand for visits to recreation areas.

2. the total increase in demand would be approximately 50 percent larger than present rates of demand among groups on the 4 day-40 hour work week.

Although no specific data were presented, it might be valid to hypothesize that many of the activities not participated in by respondents in the reports by the Outdoor Recreation Resources Review Commission (1962e), Faunce (1963), and McEvoy (1974) were the more time consuming activities.
The Outdoor Recreation Resources Review Commission (1962e) lent support to this hypothesis. Vacation trips are time consuming. The probability of a family taking a vacation trip was related to length of paid vacation time (Outdoor Recreation Resources Review Commission, 1962e). They stated (Outdoor Recreation Resources Review Commission, 1962e:40):

Among wage and salary earners without a paid vacation only a fourth took a vacation trip. By contrast, of those having paid vacations of 4 weeks or more 64 percent took a vacation trip.

The longer the paid vacation the more likely that a vacation trip would be taken (Outdoor Recreation Resources Review Commission, 1962e).

Participation in activities other than vacation travel also would be partly dependent on time available to recreationists. Employees of firms who had changed from a five day to a 4 day-40 hour work week significantly increased their participation in such time consuming activities as swimming and boating, traveling, acquiring a second home, fishing and hunting (Steele and Poor, 1970). In sum, if the time necessary to participate in an activity is more than an individual has available, that recreationist will not participate in that activity.
Social Groups and Participation in Recreation Activities

A characteristic of an activity may not be intrinsic to that activity. A recreationist may be attracted to an activity because it has the characteristic that his friends, relatives, or family participate in that activity. Recognizing that social influences continue after childhood, sociologists (Meyersohn, 1969; Burdge and Field, 1972; Cheek, 1971) suggested investigating the effect of group membership on participation in recreation activities. Burch (1969) conducted research which suggested that the important factor in participation in recreation activities was the social group. "Once a person has sorted out his range of leisure alternatives, he tends to have a circle of friends which reinforces his remaining within this range" (Burch, 1969:142). Data on family camping was used to suggest that both familiarity and compensatory desires converge to shape behavioral choice in recreation. Yet, to understand the sources of this convergence, one must go to social settings where persons are reciprocally influencing one another. Likely settings would be the family, friendship groups, and occupational groups. Stated in another way, Burch (1969) felt that the frequency and type of recreation for individuals was primarily a function of the groups to which they belonged. Burch (1969:143) stated that "it seems likely that post-industrial man just as his tribal and peasant
counterparts, finds the shape of his free time formed within small circles of workmates, family, and friends." Previous research by the Outdoor Recreation Resources Review Commission (1962a:136) was in agreement with Burch's (1969) hypothesis and findings. The degree of commitment to wilderness use was greater among those who reported that their friends and family also enjoyed camping than those recreationists who reported no great interest in wilderness on the part of their family and friends. "In general, we are likely to be committed to doing those things which others in our environment like to do" (Outdoor Recreation Resources Review Commission, 1962a:143).

Bultena and Wood (1970) indicated the importance of the social group for maintaining participation in types of recreation among the elderly. They analyzed elderly persons in a retirement community in Arizona. In their discussion they stated (Bultena and Wood, 1970:13):

Physical concentration of retired persons in separate communities appears to perform important functions in easing their adaption to the retirement role. First, these communities provide a group of age peers whose orientations toward leisure are compatible and who collectively constitute a reference group which legitimizes behavior that might be defined as improper or excessive in other settings.

Consequently, the tendency for the elderly to participate in fewer types of recreation activities would be mitigated by the existence of a supportive group of individuals.
Descriptive studies support the contention that group membership is important to recreation behavior. Camping, for example, appears to be a group activity. In a study of visitor use in selected units of the California state park system, McCormick (1970) reported that the average campsite contained five people and the average number of people per car of users of the parks was four.

A study of recreationists at Horicon Marsh, Wisconsin (Keith, 1964) found that the average number of people in cars watching geese was 3.82 on the weekend and 2.85 during the week. Like camping, this activity was a group activity.

Garrett (1970) concluded that hunters tended to hunt in groups of two to four with almost a third of them hunting with only one other person. Nonresidents hunted in larger groups with almost one-fourth hunting with six or more people. The smallest participation was by hunters who did not hunt in a group.

Cheek (1971) noted that participation in recreation activities was dependent on participation with others. Over 70 percent of those individuals who recreated in a park, did so with others.

In sum, participation in some activities occurs in groups. If a recreationist's social circles do not participate in an activity, he will probably not participate as an individual.
Activity Types and Recreation Correlates

Recent interest in the sociology of leisure has focused on the investigation of participation in theoretically and empirically derived recreation activity types. Finding correlates to each individual recreation activity is not pragmatic. "Too numerous and diverse to be analyzed separately, recreation activities must be classified into typologies of conceptually or empirically related activities for meaningful analysis" (Hendee et al., 1971:33).

Efforts have been made to derive clusters of activities which are conceptually or empirically related. Activities within these activity types share general characteristics so that "... it could be argued that people are more likely to take part in several activities within a given group of activities than to take part in those which fall into different groups" (Burton, 1971:185).

Burton (1971) cluster and factor analyzed participation in 71 recreation activities. Cluster analysis produced fourteen activity clusters. After analyzing the homogeneity of characteristics between the fourteen clusters, three broader groupings of activities were identified. Re-analysis using 59 and 40 activities resulted in clusters similar to those derived using 71 activities. Using factor analysis, Burton (1971) identified eight factors when 71 activities were analyzed, five factors when 59 activities were examined, and five factors
when 40 activities were used in the analysis.

Bishop (1970) factor analyzed 32 leisure activities into three factors. These factors were called 1) "active-diversionary," 2) "potency" and 3) "status" to indicate the general characteristics of the activities within each cluster. Witt (1971) identified four factors: 1) "sports," 2) "outdoor-nature," 3) "adolescent-social," and 4) "aesthetic-sophisticate." "Outdoor nature" and "aesthetic-sophisticate" were considered similar to the factors labelled "potency" and "status" by Bishop (1970). Differences in the factor structures of Bishop's (1970) and Witt's (1971) studies were explained partly in terms of the differing roles that leisure activity filled for the two age groups in each study.

Factor analysis was utilized by Hendee and Burdge (1974) to discover five recreation activity types. "Culture hobbies," "organized competition," "domestic maintenance," "social leisure," and "outdoor activities" were the labels applied to the five activity clusters.

Correlates to participation in different activity clusters are the same variables that have been related to participation in single activities. Socioeconomic variables have been related to activity types which share general, common characteristics. One of the first attempts was by Proctor (1962:77-94). Recreation activities were aggregated into four types. The four activity types were "passive pursuits," "water related
recreation," "active pursuits," and "backwoods recreation."
Socioeconomic variables were related to each recreation cluster
for different regions of the country and for males and females.
The socioeconomic characteristics associated with participation
in each activity type were not uniform across the regions of
the country or for females and males. An interaction term of
age by sex explained most of the variance in the participation
of recreationists in "active pursuits." Age and urbanization
were important correlates to participation in "water related
recreation." Age, income, urbanization, presence of children,
and nonwork status of the head of the house were important
predictors of participation in "backwoods recreation." Finally,
age, urbanization, place of residence, and health were the best
correlates of participation in "passive pursuits."

A smaller scale study (Yoesting, 1974; Yoesting and
Beardsley, 1973), also factor analyzed recreation activities
into factors. Five activity types were identified. The first
factor was a "games and sports" factor consisting of nine
physically active pursuits. Factor two, "nature appreciation,"
consisted of six passive recreation activities. "Hunting and
fishing" activities comprised the third factor. "Motorized
activities" described the activities in the fourth factor.
Factor five was composed of heterogeneous recreation activities.
The association between socioeconomic variables and participa-
tion in each activity cluster was different for each type; each
socioeconomic correlate was more or less strongly related to participation in a type of activity. Age was related to participation in each factor but was most strongly associated with participation in the "sports and games" activity cluster. Education was significantly related to "games and sports," "nature appreciation," and "hunting and fishing." Education was negatively associated with participation in "games and sports" and "hunting and fishing" but positively associated with "nature appreciation." Income was positively related to participation in all activity types except factor five which was composed of camping, canoeing, and outdoor exhibits.

Tatham and Dornoff (1971) noted differences in the type of activities and the number of activities which members of different aggregates engaged. The relationship of the differing activity priorities was linked to the socioeconomic characteristics of the participants in each cluster of recreation activities. No one socioeconomic characteristic was observed to create the different activity participation. Rather, the socioeconomic characteristics were "... related in differing combinations and differing degrees to activity participation" (Tatham and Dornoff, 1971:5).

"Symbolic labor," "expressive play," "subsistence play," "unstructured play," "structured play" and "sociability" were six types of play action observed by Burch (1965). Participation in activities within each activity type was associated
Hendee et al. (1971) conceptually formed four activity types based on recreationists "most preferred" activities. The activity types were quite similar to Burch's (1965) conceptually derived activity types. Preference for activities in "appreciative-symbolic," "extractive-symbolic," "passive free-play," and "social learning" activity types was related to age and education of the participants. Hendee et al (1971:31) stated:

Comparison of activity preference by age indicated increased preference for passive free-play activities among older respondents and a decreased preference for active expressive activities. Preference for appreciative-symbolic activities was most typical of young adults (20 to 29 years of age) and least typical of those respondents 60 years of age or older. Preference for extractive-symbolic activities declined with age except for a dramatic increase among older recreationists.

... highly educated recreationists are more likely to prefer appreciative-symbolic activities. Nearly three-fourths of those with at least some college education preferred appreciative-symbolic activities. On the other hand, nearly three-fourths of those preferring hunting and fishing, passive free-play, or active-expressive activities had not completed college.

Time has been an important correlate of participation in some activity clusters as it was in individual activities. The Outdoor Recreation Resources Review Commission (1962d) indicated that horseback riding, an activity in a "physically active" recreation type, was not significantly restricted by time
considerations. Time availability was an important limitation to participation in activities classified as "backwoods recreation" and "passive outdoor pursuits." The relationship of time to participation in different activity clusters has not been thoroughly studied.

A second recreation correlate not adequately examined in the "activity types" research is social group membership. O'Leary et al. (1974) and Field and O'Leary (1973) reported that participation in different activity types was related to the social group in which an individual recreated. When the type of participation group changed from friends to family, for example, a new leisure type emerged. Although this type of study is just developing, first results have indicated that there is some value in considering the social group as a correlate to participation in different types of recreation.

Personality characteristics also have been related to participation in recreation activity types. Moss et al. (1969) reported that participation in certain classes of activities was associated with personality traits. Dogmatic individuals, for example, were more likely to participate in group camping and hunting than less dogmatic people. Dove hunters and fishermen who used live bait, were less rigid than those recreationists not engaging in these activities. Ferriss (1970) also concluded that personality traits were related to certain kinds of activities.
In a second analysis, Moss and Lamphear (1970) hypothesized that activities could be clustered into meaningful groups. These activity groups, it was thought, would be related to different measurable human needs of different personality types. Both hypotheses were supported by the authors' data: different activity types were related to different needs of their respondents.

McKechnie (1974) examined the relationship of both personality and socioeconomic variables to participation in recreation types. Six dimensions were derived from the factor analysis of 121 pastimes engaged in by a California sample of recreationists. Demographic variables and scores on the nine scales of the "Environmental Response Inventory" (McKechnie, 1973), a personality instrument designed to assess environmental dispositions, were correlated with participation in each activity type. Participants in the six different types of activities differed with respect to demographic variables and environmental dispositions.

In sum, many of the correlates to participation in individual recreation activities also are relevant to participation in activity types. Socioeconomic variables, amount of time available for recreation, social group membership, and personality variables have been found to be important correlates to participation in activity types composed of recreation activities which share certain general characteristics.
Summary

The literature review attempted to outline the research on recreation correlates. Further, the review indicated how researchers had progressed from the investigation of participation in individual activities to the more pragmatic investigation of correlates to participation in recreation activity types.

Socioeconomic variables have been the most thoroughly explored correlates to leisure behavior. White (1955) and Havighurst (1957) related social class to participation in different types of recreation behavior and found that social class was important to participation in different types of recreation activities.

Because age can be a limiting or facilitating factor to participation in different recreation activities, and because age often indicates recreation tastes, it has been related to participation in different types of activities. The Outdoor Recreation Resources Review Commission (1962a; 1962d), Baley (1955), Montoye et al. (1959), Briggs (1958), Buhler (1961), Hendee et al. (1971), Owens (1970), Burdge (1967), McCurdy and Miller (1968), and Myles (1969) determined that age was related to preference for different types of recreation activities.

Education also influences choices of recreation activities. Hendee et al. (1971), Burch and Wenger (1967), Hendee et al. (1968), Lucas (1964), Outdoor Recreation Resources
Review Commission (1962a; 1962e), Reid (1964), Kittle et al. (1965), Sendak and Bond (1970), Garrett (1970), and Burdge (1967) found that education did affect choices of recreation pursuits.


Income was a socioeconomic variable related to participation in different activities. Owens (1970) reported that participation in outdoor recreation overall was related to higher income. McArthur et al. (1971), Owens (1970), the Outdoor Recreation Resources Review Commission (1962e), Burdge (1967), Sendak and Bond (1970), and Garrett (1970) found a relationship between income and participation in specific recreation activities.

Recognizing that socialization was an important factor to consider, researchers also have examined the relationship between childhood experiences and participation in particular
recreation activities. Yoesting and Burkhead (1973), Sofranko and Nolan (1972), Kelly (1974), Christensen (1972), and Christensen and Yoesting (1973) provided support for the contention that "... recreation preferences arise out of ... experiences" (Ferriss, 1970).

Time would appear to be an obvious limiting factor to participation in certain types of activities. Time was found to be a correlate to participation in different recreation activities by the Outdoor Recreation Resources Review Commission (1962e) and Steele and Poor (1970).

Because socialization continues after childhood, the implied influence of one's social group on recreation behavior was examined. The Outdoor Recreation Resources Review Commission (1962a), Bultena and Wood (1970), Burch (1969), and Cheek (1971) indicated the importance of the social group to the recreation choices of people; the Outdoor Recreation Resources Review Commission (1962a) considered the group important to commitment to wilderness use, Bultena and Wood (1970) considered the group as important to the elderly in their recreation pursuits, Burch (1969) explained participation in camping with reference to the social group, and Cheek (1971) considered the group as important to participation in going to the park.

A number of descriptive studies reflected the importance of the social group in recreation behavior. McCormick (1970),
Keith (1964), and Garrett (1970) reported that particular activities were participated in with groups to a significant degree.

Because studying correlates to individual recreation activities is not expedient (Hendee et al., 1971), sociologists have begun to search for clusters of activities which share general characteristics. Variables then may be related to the derived "activity types." Burton (1971), Bishop (1970), Witt (1971), and Hendee and Burdge (1974) determined that there as a factor structure implicit in participation patterns of recreationists.

Finally, researchers have determined that correlates to participation in individual recreation activities also are correlates to participation in activity clusters. Proctor (1962), Yoesting (1974), Yoesting and Beardsley (1973), Tatham and Dornoff (1971), Burch (1965), and Hendee et al. (1971) found socioeconomic variables to be important correlates to participation in different activity types. Time (Outdoor Recreation Resources Review Commission, 1962d), social group membership (O'Leary et al., 1974; Field and O'Leary, 1973) and personality (McKechnie, 1974; 1973; Moss and Lamphear, 1970; Moss et al., 1969) also have been determined to be significant correlates to participation in different types of recreation activities.
CONCEPTUAL FRAMEWORK

Introduction

Inferences are now being made from the "activity types" study results. Hendee and Burdge (1974:160) stated:

Since participation in activities within . . . clusters is highly intercorrelated, it may be that, at least at a highly generalized level, activities in the same cluster provide similar satisfactions. Thus, for many people, some of these activities may be substitutable with little loss in satisfaction.

If this inference were true, activity substitutability would be a potentially useful concept to guide public recreation policy, particularly where difficult and expensive resource allocation decisions must be made (Hendee and Burdge, 1974:160). Facilities at which a few selective activities were offered, instead of many, may be developed which would provide satisfaction to participants which was similar to the satisfaction which may have been derived from activities not provided. Alternatively, Burton (1971:185) observed:

... knowledge of stable recreation types could help in the planning of recreation alternatives, or substitutes. That is, faced with a situation in which the resources necessary to provide a particular recreation facility are not available to him, the planner could, on the basis of established recreation types, provide an alternative facility which caters for a pursuit that would have been provided for by the facility which he is unable to supply.
Even if resources were available to provide many activities, specialization of facilities may be desirable. Yoesting (1974:231) stated:

Modest specialization of individual facilities in patterns suggested by the clusters seems potentially promising. Specific population groups would find several of their interests met at one site, and user groups with quite different preferences would be less likely to interfere with one another's enjoyment.

The value of these suggested management policies is very dependent on the validity of the inference that "... some of (the activities within activity types) may be substitutable with little loss in satisfaction" (Hendee and Burdge, 1974:160). If this inference were not true, facilities at which a few selective activities were offered, may be offering activities which recreationists could not substitute for activities not provided with similar satisfaction.

Subgrouping within Groups of Participants in Recreation Activity Types

The literature which was reviewed provided no support for or against the inference that activities within activity types are substitutable with similar satisfaction. The literature on activity types indicated only that recreation activities cluster together on the basis of participation rates (Burton, 1971). Whether recreationists gain similar satisfaction from activities within activity types is a question which should be investigated.
On the other hand, the idea that recreationists may substitute recreation activities within activity types and still gain similar satisfaction, may or may not be true, for all recreationists. Some recreationists may be able to substitute activities with similar satisfaction while others may not. In fact, such subgroups would be expected to exist.

Any sample of individuals is homogeneous with respect to some characteristics but heterogeneous with respect to other characteristics. A group of individuals may be homogeneous in terms of income, for example, but they may be quite different in terms of age. Age could be used as a "subgrouping variable" (Frederiksen and Melville, 1954) by which the hypothetical group could be divided into more homogeneous age groups. Activity type research divides the heterogeneous group of all recreationists into homogeneous subgroups of individuals who participate, and who do not participate, in certain activity types. "... the heterogeneous mass market may be segmented into identifiable and relatively homogeneous groups of people with identifiable recreational participation patterns" (Tatham and Dornoff, 1971:5).

Similarly, participants in activities within an activity type may be subgrouped into those individuals who could, and those individuals who could not, substitute activities with similar satisfaction. A group of individuals homogeneous with respect to participation in an activity type, would not
necessarily be homogeneous with respect to willingness, or ability, to substitute recreation activities within activity types and gain similar satisfaction. The homogeneity of recreationists with respect to willingness, or ability, to substitute recreation activities still needs to be investigated. A descriptive analysis will be made of the distribution of recreationists, within each activity type, who could or could not substitute recreation activities with similar satisfaction.

Knowing the characteristics of the substituting and non-substituting groups of recreationists would be important. If the policies suggested by Hendee and Burdge (1974) and Yoesting (1974) were to be implemented, managers would at least know which public they were, and which public they were not, serving (Tatham and Dornoff, 1971). Identifying the characteristics of subgroups of individuals who could substitute, and who could not substitute, recreation activities within activity types with similar satisfaction is a major objective of this research.

The Basis for Subgrouping within Groups of Participants in Recreation Activity Types: Cognitive Dissonance

Cognitive dissonance theory (Festinger, 1957) may explain the existence of the substituting and nonsubstituting subgroups of participants in activity types. Consistency theory is concerned with the relations among "cognitive elements" and the
consequences when elements are inconsistent (Kiesler et al., 1969). "Cognitive elements" have been defined as knowledge, opinions, or beliefs about one's behavior and about one's surroundings in the environment (Festinger, 1957).

There are three possible relationships among cognitive elements. The cognitive elements may be irrelevant to one another. The elements may be consistent or "consonant," with one another. The elements may be inconsistent or, "dissonant," with one another. A third cognitive element is necessary to determine which relation exists. "This third element states a value or preference which implies the relation between the two other elements" (Kiesler et al., 1969:193).

![Diagram of the general cognitive dissonance model](image)

Note: + = consonant relationship between cognitive element 1 and cognitive element 2.

- = dissonant relationship between cognitive element 1 and cognitive element 2.

Figure 3. The general cognitive dissonance model
A free time activity could be used as an illustration. Two cognitive elements for an individual may be 1) "I am working on my car during my free time" and 2) "I am an auto mechanic." The relation between these two cognitive elements may be consonant, dissonant, or irrelevant. To determine the relationship which does exist, a third element would be needed. This third element could be 3) "I prefer leisure time activities which are not related to my occupation." As a consequence, the relationship between the fact that the individual was working on his car during his free time and the fact that he was an auto mechanic would be dissonant. This dissonant relation between the cognitive elements would create psychological strain, or unpleasantness, for this hypothetical individual (Taylor, 1973). The amount of psychological strain produced by a dissonant situation varies with the individual. If the dissonance were high, the auto mechanic would seek to avoid the dissonant situation (Festinger, 1957).

The substitution of recreation activities within activity types represents a change in life style. Substitution would be a social change at the micro level of analysis (Rogers and Shoemaker, 1971). Such a change in life style may be highly dissonant for some individuals but less dissonant, or consonant, for other recreationists.

Life style has been defined as "... a pattern of individual behavior ..." (Murphy, 1974:35). Included within
Note: - = a dissonant relationship between cognitive element 1 and cognitive element 2.

Figure 4. A hypothetical dissonant relation between cognitive elements
this general pattern of behavior would be a more specific pattern of leisure activities (Clarke, 1956). Recreationists who were asked "If you could not participate in recreation activities in which you now participate, could you gain similar satisfaction from other recreation activities within the same type of activities?" were, in a more general sense, being asked if they could change their life style and still gain similar satisfaction.

Cooper and Scalise (1974) reported that changes in life style created dissonance in individuals. Dissonance may be aroused by a change in life style because once "... persons have worked out a comfortable routine for social survival ... the rewards of security outweigh any possible rewards bought by the high costs of uncertainty" (Burch, 1969). Murphy (1954: 611) stated that one's preference for the familiar:

... is one of progressive increase in the strength of the association between a specific object and a specific type of satisfaction, so that in subsequent behavior the satisfaction is sought by pursuing this particular objective rather than some other object which might serve the drive just as well.

In the study of leisure behavior it would be expected that "... when given the freedom to dispose of his time the individual will seek activities which continue his familiar routines" (Burch, 1969:134). Deviations from leisure styles would create dissonance in recreationists.
The amount of dissonance aroused by a change in leisure style, however, would be higher for some individuals than for others. Recreationists who would experience high amounts of dissonance from a change in leisure style would not gain similar satisfaction from the substitution of recreation activities within activity types; the dissonance would reduce the satisfaction gained. These individuals would avoid substituting activities since substitution would create high psychological strain. On the other hand, for individuals who would not experience high amounts of dissonance from a change in leisure style, substitution of recreation activities within activity types could provide similar satisfaction.

To determine for which individuals substitution of recreation activities would be highly dissonant, a third element would be necessary. It is suggested that one's value for change would be one such cognitive element: the more one valued change, the less dissonance aroused by the substitution of recreation activities. Although not measured directly, an indicator of how much an individual valued change would be his social location in the social structure.

Social Location, Values, and Satisfaction from Activity Substitution

General Hypothesis I: Recreation satisfaction obtained from the substitution of recreation activities within activity types is related to one's social location.
Values, conceptions of the desirable which serve as orientations to action (Bengston and Lovejoy, 1973) can serve as a valuable link between social structure and personality. "The usual form in which this linkage is stated posits values as mediating the effects of social structure on personality: That is, social location influences values, and values in turn influence psychological states or behavior" (Bengston and Lovejoy, 1973:880). The idea that the values of different social strata are not homogeneous has been controversial.

In their discussion of the differences between Weber and Durkheim, Pope et al. (1975:423) stated:

Since Parsons emphasized common values in his own theory of action, it is not surprising that he . . . emphasized the importance of the common value element in both Weber and Durkheim. He was certainly right in holding that Durkheim stressed the importance of common moral rules and ideals. However, the notion of values common to an entire society is rather foreign to Weber, who more typically analyzed the differences in ideas and ideal interests of different social, political and economic strata within a society.

The debate concerned with common versus class specific values is as old as the discipline of the sociology itself.

Hyman (1953) and Merton (1957a) have engaged in a more recent debate over the existence of common values across social strata. Hyman (1953) suggested a class related value for success. The lower class value system was reported to place less emphasis upon traditional high success goals and goal achievement which would be necessary for success. "To put it simply,
the lower class individual doesn't want as much success, knows he couldn't get it even if he wanted to, and doesn't want what might help him get success" (Hyman, 1953:427). To support this contention, Hyman (1953) reported research results which indicated that lower class individuals placed less emphasis on education and occupational mobility and believed in the possibility of success less than higher class respondents.

Hyman's (1953) position, that values differ by social status, has been challenged by Merton (1957a). Merton (1957a) maintained that anomie resulted from the fact that all social status groups valued the same ends but did not have equal access to the means necessary to reach those ends. In Merton (1957a:162) words anomie resulted from an "... acute disjunction between the cultural norms and goals which everybody in a particular group subscribe to and the social structured capacities of members of society to act in accord with them." Although this definition of anomie implied that values were invariant across class strata, Merton (1957b) later modified his position to allow for different values across different social strata.

Rodman (1963) also challenged Hyman's (1953) conclusions and offered a different theory about the relationship between class and success values. All classes shared the same success values. Classes differed with respect to success values, however, because of a "lower class value stretch" (Rodman, 1963).
Figure 5. A hypothetical "value range" for a particular value

Source: Della Fave (1974:155)

Values were not to be conceived of as a single point, but a range. For any value, the range would be bounded at the top by an ideal, or preferred, level of value and at the bottom by a minimal, or tolerant level of acceptability. In other words, although an individual may value a certain level of success, there is a lower level of success which would be tolerable to him.

It was Rodman's (1963) contention that in terms of preference, a universal, common-value system existed that was
shared equally by all classes. Classes would differ, however, with regard to tolerance. The lower classes do not have different preferences for success than the higher classes, but a less stringent criteria of what would be an acceptable level of success. Thus, the lower classes would have a wider "value range" than the upper classes.

Figure 6. A hypothetical example of class differences in "value ranges" for a particular value
Della Fave (1971; 1974) tested Hyman's (1953) hypothesis of a class related value system against Rodman's (1963) hypothesis of a universal value system. Data on educational, occupational, and income aspirations were gathered from a high school sample. Study results supported Hyman's (1953) proposition; social classes differed with respect to values and not merely on varying criteria for acceptable levels of things valued. The lower classes had different educational, occupational, and income aspirations than the upper classes.

Occupational research has provided additional support for the existence of a class related value system. Davidson and Anderson (1937), Centers (1948), Jenson and Kirchner (1955), Lipset and Bendix (1959), Jackson and Crockett (1964), and Blau and Duncan (1967) have concluded that the father's occupational level would set limits on the social status of the son's probable occupation. This relationship between father and son occupation levels results from the father transmitting work values and achievement values to their sons (Mortimer, 1974; Strong, 1957; Crites, 1962; Parsons, 1964; Heilbrun, 1969). Values remain class oriented because of the socialization process (Bengston and Lovejoy, 1973).

Relatively little empirical work has been done concerning recreation values (Burdge and Field, 1972). Of the studies that do exist, direct and indirect support for a class related value for leisure has been evident.
Dubin (1963) argued that not all social experience was valued by individuals. Dubin (1963:56) stated:

... social experience is differentially valued ... participation takes place in some experiences because it is necessary and not because the activity itself is valued ... The fact (is) that remunerative work may be required by the society but ... this does not guarantee that it will be viewed as important or valued by workers.

From this argument, Dubin (1963:57) hypothesized that "A significant proportion of industrial workers will rate nonjob interests high in their value orientation on the Central Life Interests Questionnaire." This hypothesis was supported indicating a lower class value for leisure.

Orzack (1963) amplified Dubin's (1963) conclusions. Using a sample of professional nurses, instead of blue collar industrial workers, Orzack (1963) reported that professionals valued work experiences over nonwork experiences. Combining the Dubin (1963) and Orzack (1963) conclusions would result in evidence for a relationship between social class and the value for leisure.

Most leisure research would support the conclusion that there is a relationship between socioeconomic location and value for leisure. Yoesting and Burkhead (1971) correlated indicators of socioeconomic location with an eleven and five item leisure orientation scale (Burdge, 1961; Yoesting and Burkhead, 1971). Results of that analysis are shown in Table 1. These results show a relationship between socioeconomic
Table 1. Correlation analysis of leisure orientation scales and various socioeconomic variables

<table>
<thead>
<tr>
<th></th>
<th>Sample I 5-Item scale</th>
<th>Sample I 11-Item scale</th>
<th>Sample II 5-Item scale</th>
<th>Sample II 11-Item scale</th>
</tr>
</thead>
<tbody>
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<td>-.009</td>
<td>.084</td>
<td>.095</td>
</tr>
<tr>
<td>Sex—respondent</td>
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<td>.126</td>
<td>.032</td>
<td>-.058</td>
</tr>
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<td>Age—respondent</td>
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<td>-.136</td>
<td>-.242**</td>
<td>-.284**</td>
</tr>
<tr>
<td>Education—respondent</td>
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<td>.149</td>
<td>.221**</td>
<td>.018</td>
</tr>
<tr>
<td>Education—head</td>
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<td>.109</td>
<td>.223**</td>
<td>.122*</td>
</tr>
<tr>
<td>Present residence</td>
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<td>.180*</td>
<td>.139*</td>
<td>.0999</td>
</tr>
<tr>
<td>Income</td>
<td>.277*</td>
<td>.132</td>
<td>.177*</td>
<td>.0617</td>
</tr>
</tbody>
</table>

*Source: Yoesting and Burkhead (1971:64).
* = 0.05 level of statistical significance.
** = 0.01 level of statistical significance.

Location and leisure orientation. Leisure was valued more by the higher classes, the younger individuals, and the more urban respondents.

If voluntary behavior is an indication of values, the majority of the available evidence has supported the conclusion that an individual's social location is related to his value for leisure. Studies (Kittle et al., 1965; Sendak and Bond, 1970; Owens, 1970; Garrett, 1970; Burdge, 1967; Outdoor Recreation Resources Review Commission, 1962a; 1962e) have
concluded that social location is related to participation in recreation activities.

In sum, there has been support for Bengston and Lovejoy's (1973:880) statement that "... social location influences values, ..." Although some disagreement has been evident, most empirical evidence supported the idea that an individual's values are related to his location in the social structure (Merton, 1957b).

The most relevant value for this research would be the value individuals might have for changes in their personal lives (Rogers and Shoemaker, 1971). If individuals did not value changes in their life style, a change in leisure style would violate their value system. As a consequence, substitution of recreation activities within activity types would be a violation of their general value system and represent a highly dissonant situation. The amount of dissonance aroused by a change in leisure style partly would be a function of an individual's acceptance of change.

Adoption studies basically have been concerned with individual values for change. Ramsey et al. (1959:35) stated:

Two main approaches to adoption studies have been established: the social psychological and the sociological. In either approach, value orientations are believed to influence the process of adoption.

Personal flexibility, or a value orientation toward change, also would be a factor which would foster the adoption of a
Figure 7. An illustration of the causal chain producing dissonance from the substitution of recreation activities

Note: + = a consonant relationship between cognitive elements or a dissonant relationship between cognitive elements so small that it does not reduce satisfaction from substituted activities.

- = a dissonant relationship between cognitive elements large enough to reduce satisfaction from substituted activities.
new leisure style. Lacking this flexibility, an individual m
ay choose the alternative of not participating in leisure
activities rather than substituting leisure activities for each
other within particular activity types.

How much change would be valued, or seen as desirable,
also would be related to socioeconomic location. Yarbrough
et al. (1970:4) stated:

In adoption research the actor is defined as
the individual or group making the decision
to accept or not accept an innovation, and is
referred to as the adoption unit.

The actor (adoption unit) is also important
because he brings into the adoption situation
certain of his own characteristics (age, sex,
education level, family situation, financial
resources, etc.). Such attributes, as part
of the situation of action, influence behavior
directly. They also indirectly influence
action by effecting the type of orientation
(beliefs, attitudes, values, habits) the actor
assumes toward other aspects of the situation.

In other words, social location would influence an individual's
value for change.

Bose (1961) studied the characteristics of Indian farmers
who adopted new agricultural processes. Farmers in higher
castes and with higher literacy adopted new farming processes
to a greater degree than farmers with lower literacy and caste
position. Higher socioeconomic status was associated with more
openness to change.

Windham and Loftin's (1961) research partly supported a
direct relationship between socioeconomic status and orientation
toward change. Acceptance of a new county hospital "... was associated with level of living, but not with other social and economic characteristics" (Windham and Loftin, 1961: 421). Social and economic characteristics, such as amount and type of formal education and type of employment would have been associated with acceptance of the new county hospital if the study had a sufficient number of cases (Windham and Loftin, 1961).

Havens (1965) related social status to adoption of bulk milk tanks. "Of those farmers who perceived the adoption of bulk milk tanks as a risk, social status was most relevant to whether they proceeded to adopt anyway" (Havens, 1965: 162). The higher the social status, the more likely a person was to adopt a new practice under risky circumstances. In sum, studies by Bose (1961), Windham and Loftin (1961), and Havens (1965) as well as other authors (Abell and Larson, 1960; Adams et al., 1963; Clark, 1968; Denis, 1961; Correa, 1965; Carlson, 1964; Cawelt, 1967; Campbell and Lionberger, 1963; Klonglan et al., 1963; Bauder, 1961; Beal et al., 1967; Dasgupta, 1963) have indicated that the higher the socioeconomic status, the higher the value orientation toward change. Thus, within each of the five activity types to be analyzed in this research, it can be hypothesized:
Subhypothesis I: Ability to substitute recreation activities within an activity type with similar satisfaction is related to social class variables.

Empirical Hypothesis I: The group of recreationists who can substitute recreation activities within activity types with similar satisfaction will have a significantly higher income than the group of recreationists who cannot substitute recreation activities within activity types with similar satisfaction.

Empirical Hypothesis II: The group of recreationists who can substitute recreation activities within activity types with similar satisfaction will have a significantly higher occupational prestige score than the group of recreationists who cannot substitute recreation activities within activity types with similar satisfaction.
Empirical Hypothesis III: The group of recreationists who can substitute recreation activities within activity types with similar satisfaction will have significantly more years of formal education than the group of recreationists who cannot substitute recreation activities within activity types with similar satisfaction.

Age, a variable also related to one's social location, has been a demographic characteristic frequently related to adoption practices. Arndt (1968), Beal et al. (1967), Bhasin (1966), Rogers (1961), King (1964), Ross (1966), Bhatia (1966), Clark and Abell (1966), Takeshita (1966), and Robertson and Rossiter (1968) concluded that adopters of new practices were younger than nonadopters. Younger recreationists might be expected to adopt a new leisure style before older recreationists. Within each of the five activity types examined in this research it can be hypothesized:

Subhypothesis II: Ability to substitute recreation activities within an activity type with similar satisfaction is related to age.
Empirical Hypothesis IV: The group of recreationists who can substitute recreation activities within activity types with similar satisfaction will be significantly younger than the group of recreationists who cannot substitute recreation activities within activity types with similar satisfaction.

Present Recreation Activities, Childhood Recreation Activities, and Satisfaction from Activity Substitution

General Hypothesis II: The amount of recreation satisfaction obtained from the substitution of recreation activities within an activity type is related to the degree of involvement in each type of activity.

Some recreationists may value a change in leisure style but still may not be willing to substitute recreation activities within activity types if such a substitution represented a major change in leisure style (Rogers and Shoemaker, 1971). The amount of change represented by the substitution of recreation activities within an activity type would be dependent upon the recreationist's degree of experiences with, or preference for, activities within a particular activity type.
Figure 8. An illustration of the causal chain producing dissonance from the substitution of recreation activities, social location considered.
"Activity types" are clusters of activities which share general characteristics. Yoesting (1974), for example, explained that the activity type which he labelled "games and sports" shared the general characteristics of being physically active, inexpensive, engaged in within a team or club setting and undertaken in an urban, manmade environment. Other activity types in his study were composed of activities which shared similar characteristics. Recreationists who participated in the "games and sports" activity type were thought to be oriented toward that type of activity (Burton, 1971). The more activities within an activity type in which a recreationist participated, the more his orientation toward that type of recreation activity. Substitution of recreation activities within activity types in which one is highly oriented and familiar would not represent much of a change from the past since one would already be very familiar with the general characteristics of the activity to be substituted. In other words, the more activities within an activity type a recreationist participated in, the more compatible the substituted activity with his existing leisure style. Substitution of compatible recreation activities would represent less of a psychological adjustment, or less of a psychological cost, than substitution of less compatible recreation activities. As a result, the more activities within an activity type a recreationist participated in, the less dissonance aroused by
Figure 9. An illustration of the causal chain producing dissonance from the substitution of recreation activities within types, number of present activities within a particular activity type considered.
the change in leisure style within that type and the more likely he could substitute recreation activities with similar satisfaction.

Some research has supported this idea. Hoffer and Strangeland (1958) studied the farmers who adopted, or did not adopt, approved practices in corn growing. The newer the practice, the more doubts the farmer had concerning it and the less likely he was to adopt the practices in corn growing. Rogers (1961) stated that the more congruent the new practice to be adopted with older practices, the more likely the farmer was to adopt the new practice.

Similarly, Brander and Kearl (1964:288) stated that "persons who evaluated an innovation as congruent with previous practices would accept the innovation more rapidly than those who fail to make such an evaluation." Other researchers (Erasmus, 1962; Magdub, 1964; Mahoney, 1960; Danda and Danda, 1968; Brander and Strauss, 1959; Feliciano, 1964; Fliegel et al., 1967) supported the conclusion that the compatibility of a new idea with existing practices is positively related with the adoption of the new idea. In sum, the more a change in leisure style is congruent with present orientations, the more likely will be the acceptance of that change. Alternatively, the less the change in leisure style, represented by the substitution of recreation activities within activity types, the more likely the recreationist can obtain similar
satisfaction from the substituted activity. Within each of the five activity types analyzed in this research it can be hypothesized:

**Subhypothesis III:** Ability to substitute recreation activities within activity types with similar satisfaction is related to present level of experiences within those activity types.

**Empirical Hypothesis V:** The group of recreationists who can substitute recreation activities within an activity type with similar satisfaction presently will be participating in significantly more weighted recreation activities within that activity type than the group of recreationists who cannot substitute recreation activities within that activity type with similar satisfaction.

Past orientations toward recreation activity types also would increase, or decrease, the amount of dissonance aroused from a change in leisure style. The Outdoor Recreation Resources Review Commission (1962f:57) stated that "a skill once learned remains very much intact. A predominant interest persists and although it may lie dormant for a few decades, it
will reassert itself on demand." Substitution within an activity type would represent less of a psychological adjustment, or psychological cost, for the recreationists who participated in more of the activities within an activity type as a child than for other recreationists. For, an individual with high childhood experiences within an activity type may always reassert skills and interests previously held. Consequently, this individual would be more secure in adjusting his leisure style within activity types in which he had past experience. The more activities within an activity type a recreationist participated in as a child, the more likely he could substitute activities within that activity type with similar satisfaction because of the smaller change in leisure style represented by the substitution.

**Subhypothesis IV:** Ability to substitute recreation activities within activity types with similar satisfaction is related to the level of childhood experiences within those activity types.

**Empirical Hypothesis VI:** The group of recreationists who can substitute recreation activities with similar satisfaction will have participated in significantly more weighted recreation activities within that activity type as a child.
than the group of recreation-ists who cannot substitute recreation activities within that activity type with similar satisfaction.
NUMBER OF CHILDHOOD ACTIVITIES WITHIN A PARTICULAR ACTIVITY TYPE

DEGREE OF PAST PREFERENCE FOR, AND FAMILIARITY WITH A PARTICULAR ACTIVITY TYPE

AMOUNT OF CHANGE IN LEISURE STYLE REPRESENTED BY THE SUBSTITUTION OF RECREATION ACTIVITIES WITHIN A TYPE

PRESENT LEISURE STYLE

+ - PROPOSED CHANGES IN LEISURE STYLE

PSYCHOLOGICAL COSTS, OR AMOUNT OF DISSONANCE AROUSED BY THE SUBSTITUTION OF RECREATION ACTIVITIES WITHIN AN ACTIVITY TYPE

LIKELIHOOD OF SUBSTITUTING RECREATION ACTIVITIES WITH SIMILAR SATISFACTION

Note: + = a consonant relationship between cognitive elements or a dissonant relationship between cognitive elements so small that it does not reduce satisfaction from substituted activities.

- = a dissonant relationship between cognitive elements large enough to reduce satisfaction from substituted activities.

Figure 10. An illustration of the causal chain producing dissonance from the substitution of recreation activities within types, number of childhood recreation activities within a particular activity type considered.
Figure 11. Summary illustration of the causal chain producing dissonance from the substitution of recreation activities within activity types, social location, present activities, and childhood activities considered.
METHODS

The Universe

Data for this study were part of a larger study conducted during the summer of 1973. The larger study was designed to determine what constituted a quality recreation experience for outdoor recreationists. The universe for the study consisted of all households in an eight county area of northeast Iowa. The specific counties were Allamakee, Clayton, Delaware, Dubuque, Fayette, Howard, Jackson and Winneshiek.

Selection of this eight county universe was for two reasons. First, this area has been designated as a planning region by the Iowa State Extension Service. Consequently, a specific area for the application of the study results could be envisioned. Second, excellent recreation resources, such as the Upper Iowa River, are located in the eight county region providing a base for recreation experiences to residents of the counties. With such recreation experiences, many of the potential respondents would have formed educated opinions about what they considered a quality recreation experience.

The Sampling Procedures

Six strata were defined in the universe based on the size of community. The six strata were:

1. cities with population of 50,000 and over in the 1970 census.
2. towns with population between 5,000 and 49,999.
3. towns with population between 2,500 and 4,999.
4. towns with population between 1,000 and 2,499.
5. towns with population less than 1,000.
6. areas outside incorporated towns and cities.

Within each stratum an area sample was selected. Rather than selecting individual houses as the ultimate sampling unit, small areas of land were randomly selected. Aerial photographs or city directories were used to define the boundaries of the segments. All houses in these land segments were included in the sample. The interviewer canvassed each segment and was responsible for accounting for each housing unit within that segment. In order to assure adequate representation of males, half the segments were designated as male segments and half as female. In the male segments, the male head of the household over 18 years of age was to be interviewed in households having both a male and a spouse. In female segments, the female head of the household over 18 years of age was to be interviewed. For households having only a head and no spouse, the head was to be interviewed regardless of his or her sex.

It was desired that 350 interviews be completed. As data in Table 2 show, 394 occupied housing units were identified in the sample and questionnaires were obtained from 292 or 74.1 percent of the households. Despite repeated attempts, interviewers were unable to establish contact with 56 or 14.2 percent
Table 2. Field results by stratum

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Total number of households identified</th>
<th>Interview completed</th>
<th>Refusals</th>
<th>Unable to contact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>1. 50,000 and over</td>
<td>114</td>
<td>77</td>
<td>20</td>
<td>17.5</td>
</tr>
<tr>
<td>2. 5,000 - 49,999</td>
<td>33</td>
<td>27</td>
<td>5</td>
<td>15.2</td>
</tr>
<tr>
<td>3. 2,500 - 4,999</td>
<td>48</td>
<td>39</td>
<td>4</td>
<td>8.3</td>
</tr>
<tr>
<td>4. 1,000 - 2,499</td>
<td>46</td>
<td>37</td>
<td>3</td>
<td>6.5</td>
</tr>
<tr>
<td>5. Less than 1,000</td>
<td>44</td>
<td>32</td>
<td>5</td>
<td>11.4</td>
</tr>
<tr>
<td>6. Open country</td>
<td>109</td>
<td>80</td>
<td>9</td>
<td>8.3</td>
</tr>
<tr>
<td>Total</td>
<td>396</td>
<td>292</td>
<td>46</td>
<td>11.7</td>
</tr>
</tbody>
</table>

of the households. The remaining 46 or 11.7 percent of the sample refused to cooperate.

Operationalization of Variables

Data were collected through the administration of an interview schedule. Included in the interview schedule was five factors or clusters of recreation activities. These clusters were derived from an earlier statewide study of recreation (Yoesting and Beardsley, 1973) in which respondents were asked to indicate whether or not they participated in forty-five outdoor recreation activities. The "yes" or "no" responses were then subjected to the principal components, factor analytical technique with the varimax rotation (Harmon, 1967; Nunnally, 1967). The results of this analysis indicated the degree to which activities could be grouped into recreation types on the basis of participation by the respondents.

Five factors were specified, based on results of a sub-sample on the larger population (Yoesting and Beardsley, 1973). There was no theoretical justifications specified for activity selection. The data, therefore, provided the initial clustering of factors. A predetermined cut-off value of 0.4 was specified for initial inclusion of the activity on the factor. Activities were permitted to remain on all factors if the 0.4 criteria were met on more than one factor. Of the forty-five recreation activities, thirty-three met the minimum requirement
on one or more factors. The five recreation types had thirteen, six, seven, five, and three activities, respectively (see Appendix A for the activity types).

"Face sheet" information was used to operationalize each respondent's socioeconomic location. Occupation was rated using the North-Hatt scale (Hatt and North, 1947) for occupational prestige. Education was measured by the number of years of formal education. Income was measured in dollars earned in a twelve month period. Age was measured by number of years since birth.

Preference for a type of activity may be operationalized in two ways. The total number of activities within an activity type in which the respondent participated may indicate that respondent's preference for a type of activity. An individual may, however, participate only once a year in each of three activities within a type but participate in one activity forty times a year in a second activity type. Indicating that the recreationist had a preference for the first activity type, over the second, may be misleading. Consequently, the second way to operationalize a respondents preference for a type of activity would be to weight participation in an activity by the frequency of participation in that activity and then sum the number of activities participated in within each activity type.
The latter procedure for operationalizing preference for an activity type was used. For childhood preferences, respondents were asked in which of forty-five recreation activities they participated when there were twelve to seventeen years of age. Second, respondents were asked, of those activities in which they participated during childhood, did they participate occasionally or frequently. Activities in which there was frequent participation as a child were weighted by two. An activity was weighted by one if the respondent participated in that activity only occasionally as a child. These weighted scores were then summed for each of the five predefined activity types. The summated score for each activity type represented the respondent's childhood preference for each type of activity.

For present activity type preferences, respondents were asked how many times a year they participated in each of forty-five activities. The median number of times in which respondents participated in each activity was derived. Those respondents who participated in an activity more times than the median were considered frequent participants; those individuals whose participation rate was below, or equal to, the median were considered occasional participants. Frequent participation in an activity resulted in that activity being weighted by two. Occasional participation in an activity resulted in that activity being weighted by one. Again, these weighted scores were then summed for each of the five predefined
activity types. The summated score for each activity type represented the respondent's current preference for each type of activity.

The "dependent variable," ability to substitute recreation activities within the recreation types with similar satisfaction, also was measured in the interview schedule. Recreation participants were asked if they could substitute activities in which they did not participate within a activity type, for other activities within the same activity type in which they did participate with similar satisfaction. Appropriate responses were "yes" or "no."

Statistical Procedures

Discriminant analysis is employed when groups of persons are defined a priori and the purpose of the analysis is to distinguish the groups from one another on the basis of their score profiles (Nunnally, 1967). Within each of the five activity types defined by Yoesting and Beardsley (1973), a frequency count will be used to determine 1) the number of individuals who can and 2) the number of individuals who cannot substitute recreation activities within an activity type with similar satisfaction. Consequently, two subgroups of recreationists within each activity type will be defined. These substituting and nonsubstituting subgroups will serve as the groups defined a priori. Finally, the frequency count will
test Empirical Hypotheses I through V.

Within each activity type, education, occupation, family income, age, the number of childhood recreation activities and the number of present recreation activities in which the respondents participated will be used as discriminating variables. In other words, those characteristics will be used to determine if they distinguish the group of recreationists who can substitute recreation activities from the group of recreationists who cannot substitute recreation activities with similar satisfaction.

The statistical model for discriminant analysis is (Nie et al., 1975:435):

$$D_i = d_{i1}Z_1 + d_{i2}Z_2 + \ldots + d_{ip}Z_p$$

where:

- $D_i$ = the score on the discriminant function
- $d_{i1}$ = the weighting coefficients
- $Z_1$, $Z_2$, ..., $Z_p$ = the standardized values of the $p$ discriminating variables used in the analysis.

This statistical model yields two types of values. Each type of value helps determine the extent that the socioeconomic variables, age, childhood activities, and present activities distinguish the substituting group of recreationists from the nonsubstituting group of recreationists within each type of activities. The first value is the discriminant score.
The standardized discriminant function coefficients, \((d_i)\), are used to compute the discriminant score. The discriminant score \((D_u)\), is computed by multiplying each standardized discriminating variable, \((Z_p)\), by its corresponding coefficient and adding together these products. There is a separate score for each recreationist on the discriminant function. By averaging the scores for the recreationists in the substituting group and the recreationists in the nonsubstituting group within an activity type, each group's mean on the discriminant function is determined. A comparison of the group means, or group centroids, on each function indicates how far apart the two groups of recreationists are along the dimension represented by the discriminant function.

Wilks' Lambda, and its associated chi square, will determine if the substituting and nonsubstituting recreationists groups centroids differ significantly on the discriminant function. Lambda is an inverse measure of the discriminating power in the discriminating variables, \((Z_p)\). The larger Lambda is, the less the discriminating variables distinguish the two groups of recreationists: A large Lambda implies the centroid of the substituting group is not significantly different from the centroid of the nonsubstituting group on the reduced space defined by the discriminant function. Chi square will indicate if Wilks' Lambda has been reduced enough by the discriminating variables to state that the group centroid for substituting
recreationists is significantly different from the group centroid for nonsubstituting recreationists on the discriminant function.

The standardized discriminant function coefficients, \( d_i \), are the second values of interest. "When the sign is ignored, each coefficient represents the relative contribution of its associated variable to that function. The sign merely denotes whether the variable is making a positive or negative contribution" (Nie et al., 1975:443). Alternatively, a positive coefficient means that its associated variable is descriptive of the group with the higher mean score on the discriminant function. A negative coefficient means that its associated variable is descriptive of the group with the lower mean score on the discriminant function (Tatsuoka, 1970). "The interpretation is analogous to the interpretation of beta weights in multiple regression" (Nie et al., 1975:443).

Rao's V will be used to test the significance of each standardized discriminant function coefficient. Rao's V is a generalized distance measure. "The variable selected is the one which contributes the largest increase in Rao's V when added to the previous variables. This amounts to the greatest overall separation of the groups" (Nie et al., 1975:448). The change in Rao's V has a chi square distribution with one degree of freedom so that it can be tested for statistical significance.
RESULTS

Introduction

In order to facilitate the discussion of the study results, the general hypotheses, subhypotheses, and empirical hypotheses will be restated. Following the restatement of these hypotheses, the results of the statistical analysis will be given. Finally, the substantive conclusions will be stated.

Subgrouping within Groups of Participants in Recreation Activity Types

A descriptive analysis focused on investigating what percentage of recreationists who participated in activities within an activity type could not substitute recreation activities with similar satisfaction. The results shown in Table 3 indicate that "games and sports" activities are the most substitutable activities. The total percentage of recreationists who could substitute "games and sports" activities for each other with similar satisfaction is 67 percent. "Hunting and fishing" activities, on the other hand, are the least substitutable activities. The total percentage of recreationists who could substitute "hunting and fishing" activities for each other with similar satisfaction is 45 percent. "Nature appreciation," "motorized activities" and "unmotorized travel" are between the "games and sports" and "hunting and fishing" activity types in terms of the percentage
Table 3. Number and percentage of participants in activities within each of five activity types who could or could not, substitute recreation activities with similar satisfaction.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>%</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor I: &quot;games and sports&quot;</td>
<td>&quot;Of the activities in 'games and sports,' would you be just as satisfied to participate in other activities if you could not participate in the 'games and sports' in which you now participate?&quot;</td>
<td>70</td>
<td>67</td>
<td>35</td>
<td>33</td>
</tr>
<tr>
<td>Factor II: &quot;hunting and fishing&quot;</td>
<td>&quot;Of the activities in 'hunting and fishing,' would you be just as satisfied to participate in other activities if you could not participate in the 'hunting and fishing' activities in which you now participate?&quot;</td>
<td>39</td>
<td>45</td>
<td>47</td>
<td>55</td>
</tr>
<tr>
<td>Factor III: &quot;nature appreciation&quot;</td>
<td>&quot;Of the activities in 'nature appreciation,' would you be just as satisfied to participate in other activities if you could not participate in the 'nature appreciation' activities in which you now participate?&quot;</td>
<td>93</td>
<td>55</td>
<td>75</td>
<td>45</td>
</tr>
<tr>
<td>Factor IV: &quot;motorized&quot; activities</td>
<td>&quot;Of the activities in 'motorized' activities, would you be just as satisfied if you could not participate in the 'motorized' activities in which you now participate?&quot;</td>
<td>28</td>
<td>62</td>
<td>17</td>
<td>38</td>
</tr>
</tbody>
</table>
Factor V: "unmotorized travel"  "Of the activities in 'unmotorized travel,' would you be just as satisfied to participate in other activities if you could not participate in the 'unmotorized travel' activities in which you now participate?"

\[^{a}\]The percentages given are the percentage of those recreationists from the sample who participated in each of the activity types not the percentage of the entire sample of 292 individuals.
percentage of recreationists who could substitute recreation activities.

Characteristics of the Substituting and Nonsubstituting Subgroups of Recreationists

General hypotheses I and II were formulated to investigate the characteristics of the substituting and nonsubstituting subgroups of recreationists. Activity type V; "unmotorized travel" will not be further analyzed because of the few recreationists who participated in activities within activity type V. It would not be meaningful to ask what were the characteristics of the one individual who could substitute recreation activities with similar satisfaction within the "unmotorized travel" activity type as compared to the four recreationists who could not substitute activities with similar satisfaction. Within each of the other four activity types it was hypothesized:

General Hypothesis I: Recreation satisfaction obtained from the substitution of recreation activities within activity types is related to one's social location.

Subhypothesis I: Ability to substitute recreation activities within an activity type with similar satisfaction is related to social class variables.
Empirical Hypothesis I: The group of recreationists who can substitute recreation activities within activity types with similar satisfaction will have a significantly higher income than the group of recreationists who cannot substitute recreation activities within activity types with similar satisfaction.

Empirical Hypothesis II: The group of recreationists who can substitute recreation activities within activity types with similar satisfaction will have a significantly higher occupational prestige score than the group of recreationists who cannot substitute recreation activities within activity types with similar satisfaction.

Empirical Hypothesis III: The group of recreationists who can substitute recreation activities within activity
types with similar satisfaction will have significantly more years of formal education than the group of recreationists who cannot substitute recreation activities within activity types with similar satisfaction.

Subhypothesis II: Ability to substitute recreation activities within an activity type with similar satisfaction is related to age.

Empirical Hypothesis IV: The group of recreationists who can substitute recreation activities within activity types with similar satisfaction will be significantly younger than the group of recreationists who cannot substitute recreation activities within activity types with similar satisfaction.

General Hypothesis II: The amount of cognitive dissonance aroused by the substitution of recreation activities within an activity type is related to the degree of involvement in each type of activity.
Subhypothesis III: Ability to substitute recreation activities within activity types with similar satisfaction is related to present level of experiences within those activity types.

Empirical Hypothesis V: The group of recreationists who can substitute recreation activities within an activity type with similar satisfaction presently will be participating in significantly more weighted recreation activities within that activity type than the group of recreationists who cannot substitute recreation activities within that activity type with similar satisfaction.

Subhypothesis IV: Ability to substitute recreation activities within activity types with similar satisfaction is related to the level of childhood experiences within those activity types.

Empirical Hypothesis VI: The group of recreationists who can substitute recreation activities with similar satisfaction will have participated
in significantly more weighted recreation activities within that activity type as a child than the group of recreationists who cannot substitute recreation activities within that activity type with similar satisfaction.

Results for "games and sports"

Wilks' Lambda = 0.8582. Wilks' Lambda is significant at the 0.009 level of statistical significance. The discriminant score group centroid, 0.31614, for recreationists who could substitute "games and sports" activities for each other with similar satisfaction, is significantly different from the discriminant score group centroid, -0.63228, for recreationists who could not substitute "games and sports" activities for each other with similar satisfaction. The discriminating variables used in this study are important in distinguishing substituting from nonsubstituting recreationists who participate in "games and sports" activities.

Rao's V indicates which of the discriminating variables contribute most to the significant difference in discriminant score group centroids. Discriminating variables will be considered as contributing significantly to the significant difference in discriminant score centroids if the change in Rao's
V for each respective variable is significant at the 0.05 level of statistical significance.

Rao's V for income = 5.73666. Change in Rao's V for income = 5.73666. The change in Rao's V is significant at the 0.017 level of statistical significance. Income makes a statistically significant contribution in distinguishing substituting recreationists from nonsubstituting recreationists who participate in "games and sports" activities. The standardized discriminant function coefficient for income = 0.55751. The positive sign for the standardized discriminant function coefficient indicates that the group of recreationists who could substitute "games and sports" activities for each other with similar satisfaction have a higher income than the group of recreationists who could not substitute "games and sports" activities for each other with similar satisfaction. Empirical Hypothesis I for "games and sports" activities is accepted.

The F level was insufficient for occupation to enter the discriminant function. Consequently, Rao's V was not computed for occupation. Empirical Hypothesis II for "games and sports" activities is not accepted.

Rao's V for years of education = 16.44150. Change in Rao's V for years of education = 0.63199. The change in Rao's V for years of education is significant at the 0.427 level of statistical significance. Years of education does not make a statistically significant contribution after income, age, and
present level of participation in "games and sports" activities, in distinguishing substituting recreationists from nonsubstituting recreationists who participate in "games and sports" activities. Empirical Hypothesis III for "games and sports" activities is not accepted.

Subhypothesis I is partly accepted. Ability to substitute recreation activities within the "games and sports" activity type with similar satisfaction is related to income but not related to education or occupation.

Rao's V for age = 10.96295. Change in Rao's V for age = 5.22629. The change in Rao's V is significant at the 0.022 level of statistical significance. Age makes a statistically significant contribution, after income, in distinguishing substituting recreationists from nonsubstituting recreationists who participate in "games and sports" activities. The standardized discriminant function coefficient for age = -0.99576. The negative sign for the standardized discriminant function indicates that the group of recreationists who could substitute "games and sports" activities for each other with similar satisfaction are younger than the group of recreationists who could not substitute "games and sports" activities for each other with similar satisfaction. Empirical Hypothesis IV for "games and sports" activities is accepted.

Subhypothesis II is accepted. Ability to substitute recreation activities within an activity type with similar
satisfaction is related to age.

General Hypothesis I is partly accepted. Recreation satisfaction obtained from the substitution of recreation activities within "games and sports" activities is related to one's social location. Some dimensions of social location, however, are more important than others in "games and sports" activities.

Rao's V for present level of participation in "games and sports" activities = 15.80951. Change in Rao's V for present level of participation in "games and sports" activities = 4.84655. The change in Rao's V is significant at the 0.028 level of statistical significance. Present level of participation in "games and sports" activities makes a statistically significant contribution, after income and age, in distinguishing substituting recreationists from nonsubstituting recreationists who participate in "games and sports" activities. The standardized discriminant function coefficient for present level of participation in "games and sports" activities = -0.83720. The negative sign for the standardized discriminant function coefficient indicates that the group of recreationists who could substitute "games and sports" activities for each other with similar satisfaction participate in fewer activities within the "games and sports" activity type than the group of recreationists who could not substitute "games and sports" activities for each other with similar satisfaction. Empirical
Hypothesis V for "games and sports" activities is not accepted. The group of recreationists who could substitute recreation activities within "games and sports" activities with similar satisfaction were presently participating in significantly less weighted recreation activities than the group of recreationists who could not substitute "games and sports" activities with similar satisfaction. This relationship was the opposite relationship hypothesized.

Subhypothesis III is accepted. Ability to substitute recreation activities within "games and sports" activities with similar satisfaction is related to present level of participation in "games and sports" activities.

Rao's V for childhood level of participation in "games and sports" activities = 17.02153. Change in Rao's V for childhood level of participation in "games and sports" activities = 0.58003. The change in Rao's V is significant at the 0.446 level of statistical significance. Childhood level of participation in "games and sports" activities does not make a statistically significant contribution after income, age, present level of participation in "games and sports" activities, and education in distinguishing substituting recreationists from nonsubstituting recreationists who participate in "games and sports" activities. Empirical Hypothesis VI for "games and sports" activities is not accepted.
Subhypothesis IV is not accepted. Ability to substitute recreation activities within the "games and sports" activity type with similar satisfaction is not related to childhood level of experiences within "games and sports" activities.

General Hypothesis II for "games and sports" activities is partly accepted. The relationship between recreation satisfaction obtained from the substitution of recreation activities within "games and sports" activities and the degree of involvement in "games and sports" activities, however, is the opposite relationship expected.

Table 4. Summary table showing, in a stepwise format, Rao's V, Rao's V change, and the significance of Rao's V change for relevant discriminating variables used in this study

<table>
<thead>
<tr>
<th>Discriminating variables</th>
<th>Rao's V</th>
<th>Change in Rao's V</th>
<th>Significance of change in Rao's V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>5.73666</td>
<td>5.73666</td>
<td>0.017</td>
</tr>
<tr>
<td>Age</td>
<td>10.96295</td>
<td>5.22629</td>
<td>0.022</td>
</tr>
<tr>
<td>Present level of participation in &quot;games and sports&quot; activities</td>
<td>15.80951</td>
<td>4.84655</td>
<td>0.028</td>
</tr>
<tr>
<td>Years of education</td>
<td>16.44150</td>
<td>0.63199</td>
<td>0.427</td>
</tr>
<tr>
<td>Childhood level of participation in &quot;games and sports&quot; activities</td>
<td>17.02153</td>
<td>0.58003</td>
<td>0.446</td>
</tr>
</tbody>
</table>
Table 5. Summary table showing the standardized discriminant function coefficients for discriminating variables associated with a Rao's V change which is significant at the 0.05 level of statistical significance "games and sports"

<table>
<thead>
<tr>
<th>Discriminating variable</th>
<th>Standardized discriminant function coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>0.55751</td>
</tr>
<tr>
<td>Age</td>
<td>-0.99576</td>
</tr>
<tr>
<td>Present level of participation in &quot;games and sports&quot; activities</td>
<td>-0.83720</td>
</tr>
</tbody>
</table>

Results for "hunting and fishing"

Wilks' Lambda = 0.7796. Wilks' Lambda is significant at the 0.000 level of statistical significance. The discriminant score group centroid, -0.43117, for recreationists who could substitute "hunting and fishing" activities for each other with similar satisfaction, is significantly different from the discriminant score group centroid, 0.35778, for recreationists who could not substitute "hunting and fishing" activities for each other with similar satisfaction. The discriminating variables used in this study are important in distinguishing substituting from nonsubstituting recreationists who participate in "hunting and fishing" activities.
The F level was insufficient for income to enter the discriminant function. Consequently, Rao's V was not computed for income. Empirical Hypothesis I for "hunting and fishing" activities is not accepted.

Rao's V for occupation = 19.60146. Change in Rao's V = 4.06588. The change in Rao's V is significant at the 0.044 level of statistical significance. Occupation makes a statistically significant contribution, after age, in distinguishing substituting recreationists from nonsubstituting recreationists who participate in "hunting and fishing" activities. The standardized discriminant function coefficient for occupation = -0.39797. The negative sign for the standardized discriminant function coefficient indicates that the group of recreationists who could substitute "hunting and fishing" activities for each other with similar satisfaction have higher prestige occupations than the group of recreationists who could not substitute "hunting and fishing" activities for each other with similar satisfaction. Empirical Hypothesis II for "hunting and fishing" activities is accepted.

The F level was insufficient for years of education to enter the discriminant function. Rao's V was not computed for years of education. Empirical Hypothesis III is not accepted for "hunting and fishing" activities.

Subhypothesis I is partly accepted. Ability to substitute recreation activities within the "hunting and fishing" activity
type is related to occupational prestige but not related to income and years of education.

Rao's V for age = 15.53558. Change in Rao's V for age = 15.53558. The change in Rao's V is significant at the 0.000 level of statistical significance. Age makes a statistically significant contribution in distinguishing substituting recreationists from nonsubstituting recreationists who participate in "hunting and fishing" activities. The standardized discriminant function coefficient for age = 0.60251. The positive sign for the standardized discriminant function coefficient indicates that the group of recreationists who could substitute "hunting and fishing" activities for each other with similar satisfaction are younger than the group of recreationists who could not substitute "hunting and fishing" activities for each other with similar satisfaction. Empirical Hypothesis IV for "hunting and fishing" activities is accepted.

Subhypothesis II is accepted. Ability to substitute recreation activities within an activity type with similar satisfaction is related to age.

General Hypothesis I for "hunting and fishing" activities is partly accepted. Recreation satisfaction obtained from the substitution of recreation activities within "hunting and fishing" activities is related to one's social location. Some dimensions of social location, however, are more important than others in "hunting and fishing" activities.
Rao's V for present level of participation in "hunting and fishing" activities = 21.90044. Change in Rao's V for present level of participation in "hunting and fishing" activities = 2.29898. The change in Rao's V is significant at the 0.129 level of statistical significance. Present level of participation in "hunting and fishing" activities does not make a statistically significant contribution, after age and occupation, in distinguishing substituting recreationists from non-substituting recreationists who participate in "hunting and fishing" activities. Empirical Hypothesis V for "hunting and fishing" activities is not accepted.

Subhypothesis III is not accepted. Ability to substitute recreation activities within the "hunting and fishing" activity type is not related to present experiences with "hunting and fishing" activities.

Rao's V for childhood level of participation in "hunting and fishing" activities = 23.75391. Change in Rao's V for childhood level of participation in "hunting and fishing" activities = 1.85347. The change in Rao's V is significant at the 0.173 level of statistical significance. Childhood level of participation in "hunting and fishing" activities does not make a statistically significant contribution, after age, occupation, and present level of participation in "hunting and fishing" activities, in distinguishing substituting recreationists from non-substituting recreationists who participate
in "hunting and fishing" activities. Empirical Hypothesis VI for "hunting and fishing" activities is not accepted.

Subhypothesis IV is not accepted. Ability to substitute recreation activities within "hunting and fishing" activities with similar satisfaction is not related to childhood experiences within "hunting and fishing" activities.

General hypothesis II for "hunting and fishing" activities is not accepted. The rejection of General Hypothesis II results from the rejection of subhypotheses III and IV.

Table 6. Summary table showing, in a stepwise format, Rao's $V$, Rao's $V$ change, and the significance of Rao's $V$ change for relevant discriminating variables used in this study "hunting and fishing"

<table>
<thead>
<tr>
<th>Discriminating variable</th>
<th>Rao's $V$</th>
<th>Change in Rao's $V$</th>
<th>Significance of change in Rao's $V$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>15.53558</td>
<td>15.53558</td>
<td>0.000</td>
</tr>
<tr>
<td>Occupation</td>
<td>19.60146</td>
<td>4.06588</td>
<td>0.044</td>
</tr>
<tr>
<td>Present level of participation in &quot;hunting and fishing&quot; activities</td>
<td>21.90044</td>
<td>2.29898</td>
<td>0.129</td>
</tr>
<tr>
<td>Childhood level of participation in &quot;hunting and fishing&quot; activities</td>
<td>23.75391</td>
<td>1.85347</td>
<td>0.173</td>
</tr>
</tbody>
</table>
Table 7. Summary table showing the standardized discriminant function coefficients for discriminating variables associated with a Rao's V change which is significant at the 0.05 level of statistical significance "hunting and fishing"

<table>
<thead>
<tr>
<th>Discriminating variable</th>
<th>Standardized discriminant function coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.60251</td>
</tr>
<tr>
<td>Occupation</td>
<td>-0.39797</td>
</tr>
</tbody>
</table>

Results for "nature appreciation"

Wilks' Lambda = 0.9302. Wilks' Lambda is significant at the 0.067 level of statistical significance. The discriminant score group centroid, -021501, for recreationists who could substitute "nature appreciation" activities for each other with similar satisfaction, is not significantly different from the discriminant score group centroid, 0.26660, for recreationists who could not substitute "nature appreciation" activities for each other with similar satisfaction. The set of discriminating variables used in this study are not important in distinguishing substituting from nonsubstituting recreationists who participate in "nature appreciation" activities. Empirical Hypotheses I through VI are not accepted. Subhypotheses I through IV are not accepted. General Hypotheses I and II are not accepted.
Because this study is exploratory, childhood level of participation and present level of participation in "nature appreciation" activities was dropped from the analysis in order to study the results of the social location variables alone on substitution. Wilks' Lambda = 0.9350. Wilks' Lambda is significant at the 0.026 level of statistical significance. The discriminant score group centroid, 0.20585, for recreationists who could substitute "nature appreciation" activities for each other with similar satisfaction, is significantly different from the discriminant score group centroid, -0.25525, for recreationists who could not substitute "nature appreciation" activities for each other with similar satisfaction. The social class variables and age are important in distinguishing substituting from nonsubstituting recreationists who participate in "nature appreciation" activities. 6

Rao’s V for income = 11.10586. Change in Rao's V for income = 1.84055. The change in Rao's V is significant at the 0.175 level of statistical significance. Income does not make a statistically significant contribution, after age and education, in distinguishing substituting recreationists from non-substituting recreationists who participate in "nature appreciation" activities. Empirical Hypothesis I for "nature appreciation" activities is not accepted.

Rao's V for occupation = 11.53543. Change in Rao's V for occupation = 0.42957. The change in Rao's V is significant at
the 0.512 level of statistical significance. Occupation does not make a statistically significant contribution, after age, education, and income, in distinguishing substituting recreationists from nonsubstituting recreationists who participate in "nature appreciation" activities. Empirical Hypothesis II is not accepted for "nature appreciation" activities.

Rao's V for years of education = 9.26531. Change in Rao's V for education = 3.11045. The change in Rao's V is significant at the 0.078 level of statistical significance. Years of education does not make a statistically significant contribution, after age, in distinguishing substituting recreationists from nonsubstituting recreationists who participate in "nature appreciation" activities. Empirical Hypothesis III for "nature appreciation" activities is not accepted.

Subhypothesis I is not accepted. Ability to substitute recreation activities within the "nature appreciation" activity type with similar satisfaction is not related to education, occupation, or income.

Rao's V for age = 6.15486. Change in Rao's V for age = 6.15486. The change in Rao's V is significant at the 0.013 level of statistical significance. Age makes a statistically significant contribution in distinguishing substituting recreationists from nonsubstituting recreationists who participate in "nature appreciation" activities. The standardized discriminant function coefficient for age = -0.44540. The
negative sign for the standardized discriminant function coefficient indicates that the group of recreationists who could substitute "nature appreciation" activities for each other with similar satisfaction are younger than the group of recreationists who could not substitute "nature appreciation" activities for each other with similar satisfaction. Empirical Hypothesis IV for "nature appreciation" activities is accepted.

Subhypothesis II is accepted. Ability to substitute recreation activities within an activity type with similar satisfaction is related to age.

General Hypothesis I is partly accepted for "nature appreciation" activities. Recreation satisfaction obtained from the substitution of recreation activities within "nature appreciation" activities is partly related to one's social location. Age is more important than other dimensions of social location for "nature appreciation" activities.

Results for "motorized activities".

Wilks' Lambda = 0.8196. Wilks' Lambda is significant at the 0.086 level of statistical significance. The discriminant score group centroid, -021205, for recreationists who could substitute "motorized activities" for each other with similar satisfaction, is not significantly different from the discriminant score group centroid, 0.34926, for recreationists who could not substitute "motorized activities" for each other with similar satisfaction. The discriminating variables used
Table 8. Summary table showing, in a stepwise format, Rao's V, Rao's V change, and the significance of Rao's V change for relevant discriminating variables used in this study "nature appreciation" activities

<table>
<thead>
<tr>
<th>Discriminating variable</th>
<th>Rao's V</th>
<th>Change in Rao's V</th>
<th>Significance of change in Rao's V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>6.15486</td>
<td>6.15486</td>
<td>0.013</td>
</tr>
<tr>
<td>Years of education</td>
<td>9.26531</td>
<td>3.11045</td>
<td>0.078</td>
</tr>
<tr>
<td>Income</td>
<td>11.10586</td>
<td>1.84055</td>
<td>0.175</td>
</tr>
<tr>
<td>Occupation</td>
<td>11.53543</td>
<td>0.42957</td>
<td>0.512</td>
</tr>
</tbody>
</table>

Table 9. Summary table showing the standardized discriminant function coefficients for discriminating variables associated with a Rao's V change which is significant at the 0.05 level of statistical significance "nature appreciation"

<table>
<thead>
<tr>
<th>Discriminating variable</th>
<th>Standardized discriminant function coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-0.44540</td>
</tr>
</tbody>
</table>
in this study are not important in distinguishing substituting recreationists from nonsubstituting recreationists who participate in "motorized activities." Empirical Hypotheses I through VI for "motorized activities" are not accepted. Subhypotheses I through IV for "motorized activities" are not accepted. General Hypotheses I and II for "motorized activities" are not accepted.

Discussion

The first objective of this research was:

1) To determine how many recreationists within defined activity types can substitute recreation activities for each other with similar satisfaction.

Results of this study indicates that not all recreationists could substitute recreation activities within an activity type for each other and maintain their present recreation satisfaction. "Games and sports" activities had the highest percentage of recreationists, 67 percent, who could substitute "games and sports" activities for each other with similar satisfaction. "Hunting and fishing" activities had the lowest percentage, 45 percent, of recreationists who could substitute "hunting and fishing" activities for each other with similar satisfaction. The average percentage of recreationists who could substitute recreation activities for each other with
similar satisfaction, across the four activity types examined, was 57.25 percent.

Developing recreation facilities in which a few selective activities from an activity type were offered, instead of many, would be a better managerial policy for some types of recreation than for other types of recreation. Almost 70 percent of the recreationists who participate in "games and sports" activities could substitute a provided activity with similar satisfaction if the provided activity was not one in which they presently participated. Providing a few selective "games and sports" activities may be a relatively good managerial policy since most recreationists could maintain their recreation satisfaction.

Developing recreation facilities in which only a few "hunting and fishing" activities were provided, however, may be a relatively poor managerial policy. Less than half of the hunters and fishermen could substitute a provided activity with similar satisfaction if the provided activity was not one in which they presently participate. Present recreation satisfaction may not be maintained for most hunters and fishermen.

If providing a few recreation activities from an activity type was adopted as a general managerial policy, a little more than half of all recreationists on the average, 57.25 percent, could substitute recreation activities within an activity type with similar satisfaction. Almost half, 42.75 percent, of the
recreationists on the average would not experience their present recreation satisfaction if activities in which they were not currently participating were offered at recreation facilities. In general, providing facilities with a few selective recreation activities does not appear to be an optimum managerial policy in terms of maintaining current recreation satisfaction among recreationists. It is a better policy, however, for some types of recreation than for other types of recreation.

The second and third objectives of this research were:

2) To determine the characteristics which distinguish the group of recreationists who can substitute recreation activities within an activity type with similar satisfaction from the group of recreationists who cannot substitute recreation activities with similar satisfaction.

3) To determine if the characteristics which distinguish the group of recreationists who can substitute recreation activities with similar satisfaction from the group of recreationists who could not, are the same characteristics for all activity types.

Age was the only discriminating variable which distinguished substituting from the nonsubstituting recreationists who participated in "games and sports" activities, "hunting and fishing" activities, and "nature appreciation" activities.
Age has been the most important correlate to participation in recreation activities (Outdoor Recreation Resources Review Commission, 1962c; Christensen and Yoesting, 1973). An inverse relationship between age and participation in recreation activities has been most frequently reported.

Results of this research indicates that in many types of recreation, the elderly are less willing, or able, to substitute the relatively few activities they do participate in for other outdoor recreation activities. Facilities at which a few recreation activities were provided instead of many should provide activities from among the activities in which elderly individuals usually participate. If the activities provided were not those in which the elderly participated, the aged would not substitute the provided activities and their participation in outdoor recreation would be further restricted because of managerial policy.

Other important discriminating variables, in addition to age, varied by type of activity. Present level of participation in "games and sports" and income were significant discriminating variables for "games and sports" activities. Occupation was a significant discriminating variable for "hunting and fishing" activities. The subgroup of recreationists who could substitute recreation activities with similar satisfaction cannot be generalized across activity types. The characteristics of recreationists whose satisfaction would not
be affected by a managerial policy of providing facilities at which only a few recreation activities, out of many of a certain type, were provided, was different for different activity types. In all cases however, it was individuals who were high on significant social class discriminating variables who could substitute recreation activities within an activity type with similar satisfaction. Facilities where a few select activities from an activity type were provided would not maintain the satisfaction level of recreationists low on significant social class discriminating variables if the activities provided were not activities in which the lower class presently participated.

Theoretical support for the existence of activity clusters which really are different types of activities may be implied by this study's research findings. If the activity types were not different in some meaningful sense, it might be expected that the same discriminating variables would be significant in all four activity types examined in this research. Important discriminating variables, other than age, varied by type of activity. Thus, the activity types used in this study appear to be dissimilar or different "types" of recreation activities.

The finding that recreationists less involved in "games and sports" activities were more able, or willing, to substitute "games and sports" activities with similar satisfaction may have important implications. Providing facilities with a
few "games and sports" activities would benefit those recreationists less involved in that type of activity than those recreationists who participated more in "games and sports" activities. Such recreation facilities might be serving a public more superficially involved in "games and sports" activities than the public which was not being served.

In addition to the findings, an exploratory study usually indicates refinements for future studies. This research is no exception.

Ability to substitute and willingness to substitute recreation activities were treated as synonymous phrases. There may be important distinctions between being willing or being able to substitute recreation activities. Although a respondent stated that he was willing to substitute recreation activities, he may never substitute. A recreationist may be willing to substitute a recreation activity for another but because of income, age, or time restrictions he may be unable to substitute one recreation activity for some other activity. Contrarily, a recreationist may have the ability to substitute recreation activities, but because he is deeply committed, financially or otherwise, to a particular recreation activity, he may be unwilling to substitute recreation activities. Future research should not only focus on if recreation activities are substitutable but why recreation activities are substitutable.
The selection of discriminating variables should be expanded. None of the discriminating variables examined in this research distinguished substituting from nonsubstituting recreationists who participated in "motorized activities." The search for relevant discriminating variables in "motorized activities" is suggested for future research.

Further, selection of discriminating variables for this research was based on three "filtering" steps:

1) discriminating variables were chosen which were suggested by adoption research and theory
2) discriminating variables were chosen which were suggested by adoption research and theory and were available in the larger study.
3) discriminating variables were chosen which were suggested by adoption research and theory, were available in the larger study, and could be examined given the methods used.

Although adoption research and theory suggested the use of many variables, steps two and three reduced the number of discriminating variables examined. Future research should study additional theoretically suggested discriminating variables which may be related to the substitution of recreation activities with similar satisfaction. Rogers and Shoemaker (1971) listed some variables which might be considered. Individual rationality, individual intelligence, trialability of
the innovation before adoption, attitude toward risk, achievement motivation, exposure to mass media, amount of knowledge about the innovation, and the presence of modern norms all may be important discriminating variables suggested by adoption research and theory. Future investigations might focus on such variables.

Inclusion of discriminating variables such as trialability of the innovation before adoption, exposure to mass media, and amount of knowledge about the innovation in future research may be more meaningful for recreation resource managers. Such discriminating variables could be manipulated by managers. If the recreationists who could not substitute activities also were the recreationists with less knowledge about the innovation, for example, managers could provide more information to the nonsubstituting recreationists. The social location variables and childhood and present level of participation do not appear manipulative.

The inclusion of manipulative variables in future research might effect how the discriminating variables are analyzed. The discriminate analysis in this research was in a stepwise format. Perhaps future research involving manipulative variables should be in a stagewise format. From a managerial standpoint, the manipulative discriminant variables should be forced into the discriminant function first and then the non-manipulative variables could be analyzed. Managers would be
primarily interested in discriminating variables which they could effect and secondarily interested in variables over which they have no control.

In addition, future investigators should possibly use different methodological techniques. Some variables available in the larger recreation study which might have been used as discriminating variables were not examined due to methodological reasons. Discriminant analysis assumes that the discriminating variables are measured on an interval scale. Consequently, such nominal variables as sex and social group in which one participates in different outdoor recreation activities were not used as discriminating variables. Future studies using different statistical techniques might examine the relationship of nominal variables to the substitution of recreation activities within activity types.

Suggestions relative to the "dependent variable" can be made as a result of this research in addition to the issues related to the independent variables. Respondents, for example, were forced to choose activities they could substitute for other recreation activities from the same activity type. Respondents were asked, for example, if they could substitute a "game" or "sport" for other "games" or "sports" with similar satisfaction. The respondents were not asked, however, if they could substitute a "hunting" or "fishing" activity for a "game" or "sport" with similar satisfaction. If respondents did chose
"fishing" or "hunting" activities to substitute for "games" or "sports" activities, this may have been an indication that activities do not necessarily cluster because they provide similar satisfaction: "hunting" or "fishing" activities also may provide satisfaction similar to that derived from "games" or "sports" activities. This question is suggested as a topic for future research.

Measurement of the "dependent variable," ability to substitute recreation activities within activity types with similar satisfaction, should be refined. It is probable that a recreation activity is substitutable for specific recreation activities and not all of the other activities in an activity type. Specifying which specific activities in an activity type are substitutable for each other would be more informative than merely asking respondents if they could substitute recreation activities within an activity type with similar satisfaction. This degree of specification would help managers who may be trying to provide substitutable activities at recreation sites.

A second refinement may be to investigate if substitution is symmetrical. Baseball may be substitutable for football, for example, but football may not be substitutable for baseball. Providing a football field for football and baseball players, consequently, would not serve the intended publics.
Measurement of the "dependent variable" also could be expanded. Activities may be substitutable for reasons other than similar satisfaction is derivable from the activities. Activities may be substitutable because they are equally accessible. Or a set of recreation activities may be substitutable because they have similar meanings, such as they are all familiar activities, for recreationists. Different ways of measuring the dependent variable may result in the emergence of important discriminating variables other than the important discriminating variables reported in this research.

How the dependent variable is measured is dependent on the objective of the research. This study's objectives were to determine if activities were substitutable on the basis of satisfaction and to identify the variables which distinguished the substituting from the nonsubstituting recreationists. If the objective of a study was to see if recreation activities were substitutable if equally accessible, regardless of satisfaction, then the dependent variable should be measured in a manner which would reflect information relevant to the study's objective. Future researchers may wish to explore questions about substitutability other than those examined in this research and this goal should be reflected in the measurement of their dependent variable.

The use of factor analysis to derive activity types might have been a more serious problem. The use of factor analysis
to define activity types may not be conceptually sound (Romsa, 1973; Beaman, 1974a, 1974b, 1975). "Factor analysis should be used only when the data for analysis are considered to have underlying dimensions common to all people . . . or when any subgroup of the population selected for analysis has the same dimensions as the population as a whole (Beaman, 1975:147).

Romsa (1973) reported that the population which he studied was structured as to participation in each of his derived activity types. The activity types in the Romsa (1973) study "... were ... found to have distinct socioeconomic parameters, thus indicating unique submarkets of demand" (Romsa, 1973:46). Each "submarket" does not have the same underlying recreation dimensions as the population as a whole. When such a situation exists, factor analysis is inappropriate for forming activity types; factor analysis is an appropriate statistical technique only when examining underlying dimensions of a population.

Beaman (1975:149) stated, however, that:

A population does not have behavior patterns (an activity package or trade-offs) in the sense that one can use population figures for planning purposes . . . . There are groups within the population who have what may be called their own activity packages, . . . (and) until we recognize the collectivities within the population that have common activity packages . . . it is meaningless to talk about tradeoffs or substitutability of activities . . . . A critical issue in recreational planning is for whom, for what purposes.
Cluster analysis may be a more appropriate statistical technique for identifying activity types and collectivities who participate in different activity types (Beaman, 1957).

Schultz (1973:57) stated:

Whereas factor analysis determines how many common factors are needed to account for the correlations between variables, cluster analysis simply groups the variables in clusters . . . . Thus, in cluster analysis the object is to outline the general properties of a set of objects into types in terms of these general properties . . . . This is done in two stages: cluster analysis of the variables, wherein the intercorrelations of the variables is examined in order to reduce the number of attributes while still maintaining the difference between the 'individuals' and cluster analysis of the objects wherein those 'individuals' whose profile of scores on the reduced number of variables are similar are grouped together . . . . The procedure provides a classification in terms of types and subjects.

Methods of generating activity types also is related to research conclusions. To date, most activity types have been composed of activities which have clustered on the basis of participation (Burton, 1969). Clustering activities on a basis other than participation may result in different activity types than those clusters based on participation. Theoretical clustering, as opposed to empirical clustering, also may result in different activity types. Managers may provide an activity from one activity type which was derived on a participation basis which did not appear in any activity types derived on a different basis. Provision of this activity, because other activities in an activity type could not be provided, may
appear to be a valid managerial policy based on activity types derived from participation rates. The provision of the one activity would be irrelevant policy in relation to activity types derived on a basis other than participation. Consequently, policy implications, such as which activities to provide for others, would be hard to make.

Finally, the limitation of recreation activities to outdoor recreation activities in this research limits the generalizations that may be stated. Hendee and Burdge (1974:159-160) stated:

It is possible that other forms of leisure may be desirable or preferable substitutes for outdoor recreation . . . . Because . . . data are restricted to one class of leisure activity, outdoor recreation, the value for developing new information about substitutabilities is limited.

The results of this study may only be generalized to the substitutability of outdoor recreation activities and not to the substitution of leisure activities in general. Future research on this topic should be conducted.
SUMMARY

The derivation of "activity types" (Burton, 1971) has been increasingly prevalent in the leisure research (cf., Yoesting, 1974; Witt, 1971; Bishop, 1970; Hendee and Burdge, 1974). These activity types studies have concluded that there are clusters of activities which share certain general characteristics; activities within activity types are theoretically similar. Consequently, it has been hypothesized that activities within recreation activity types may be substituted for each other with little loss in satisfaction (Hendee and Burdge, 1974). This study examined the extent to which the hypothesis that activities within activity type may be substituted for each other with similar satisfaction was correct. Examined also were the characteristics of recreationists who could substitute recreation activities within activity types with similar satisfaction as opposed to recreationists who could not substitute activities with similar satisfaction.

The literature was reviewed for two purposes. The literature reviewed illustrated the gradual development of leisure research from finding the correlates to participation in individual recreation activities to finding correlates to participation in "activity types." Second, the reviewed literature indicated little support for the hypothesis that activities within activity types may be substitutable for each other with little loss in satisfaction.
Data analyzed in this research were part of a larger study conducted during the summer of 1973. Interviews with 292 individuals were completed. Included in the interview schedule was five factors or clusters of recreation activities. These clusters were derived from an earlier statewide study of recreation (Yoesting and Beardsley, 1973). "Face sheet" information was used to operationalize each respondent's social location. Occupation was rated using the North-Hatt scale for occupation prestige. Education was measured by the number of years of formal education. Income was measured in dollars earned in a twelve month period. Age was measured by number of years since birth. Preference for a type of activity was measured by weighting participation in an activity by the frequency of participation and then summing the number of activities participated in within each activity type.

The conceptual framework suggested that some recreationists could substitute recreation activities with similar satisfaction while other recreationists could not substitute recreation activities with similar satisfaction. A cognitive dissonance model and adoption research suggested that "social location (Bengston and Lovejoy, 1973) variables such as age, education, occupation, and income as well as present and past degree of participation in activity types would distinguish the subgroups of recreationists who could substitute recreation activities with similar satisfaction from the subgroups who could not
substitute activities with similar satisfaction.

Two general hypotheses were derived from the conceptual framework. Subhypotheses and empirical hypotheses were derived from the general hypotheses and tested. Some recreationists cannot substitute recreation activities within each type of activity with similar satisfaction.

General Hypothesis I theorized that one's social location might be an important factor related to the amount of psychological strain recreationists might experience from the substitution of recreation activities within activity types. Empirical Hypotheses I through IV related income, occupation, education, and age respectively to the ability to substitute recreation activities with similar satisfaction. Recreationists who could substitute recreation activities with similar satisfaction were hypothesized to have higher incomes, higher prestige occupations, more years of formal education, and be younger in age than recreationists who could not substitute recreation activities with similar satisfaction.

General Hypothesis II suggested that one's past and present experiences in activities within activity types would be related to the amount of psychological strain experienced from the substitution of recreation activities. Empirical Hypothesis V hypothesized that, recreationists who could substitute recreation activities within an activity type with similar satisfaction, would presently be participating in more
"weighted" activities of that type than recreationists who could not substitute recreation activities with similar satisfaction. Empirical Hypothesis VI indicated that, recreationists who could substitute recreation activities within an activity type with similar satisfaction, would have participated in more "weighted" activities of that type as a child than recreationists who could not substitute recreation activities with similar satisfaction.

Support for General Hypotheses I and II was partial and varied according to activity type. Empirical Hypothesis I only was supported in "games and sports" activities. Empirical Hypothesis II was supported in the "hunting and fishing" activity type but no other types of activities. Empirical Hypothesis III was not supported in any activity types. Different social class variables were important to substitution in different activity types. Subhypothesis I was partly supported. Empirical Hypothesis IV was supported in "games and sports," "hunting and fishing," and "nature appreciation" types of recreation activities. Since age was not important to substitution of "motorized activities," subhypothesis II only was partly supported. General Hypothesis I was supported in three of the four types of activities examined.

Support for General Hypothesis II also was only partial. Empirical Hypothesis V was not supported in any activity types. In fact, recreationists who participated in fewer weighted
activities within "games and sports" were the ones who could substitute recreation activities with similar satisfaction. This was the opposite relationship hypothesized. Subhypothesis IV was supported for "games and sports" activities but for the opposite reasons hypothesized. Empirical Hypothesis VI was not supported in any of the four activity types examined. Subhypothesis IV was not supported.

Various conclusions were drawn from the study. First, a managerial policy of providing a few activities from an activity type would not be a good policy in general. Providing a few activities from an activity type, instead of many, would be a better policy, however, for some types of activities than for other types. Further, the characteristics of the recreationists who could not substitute recreation activities with similar satisfaction were similar to the characteristics of individuals who do not participate in recreation activities to a great extent in the first place. Thus, providing a few activities from a recreation type, instead of many, may further limit participation by low participating recreationists. Finally, the fact that different characteristics of recreationists were important to substitution in different activity types was suggested as partial support for the actual existence of "activity types."
This exploratory research contained many shortcomings. Future research which corrected these shortcomings would have to 1) expand on the number of theoretically suggested discriminating variables, 2) examine discriminating variables measured at a lower measurement level than interval measurement, 3) use cluster analysis to form activity types, 4) allow recreationists to substitute recreation activities from any activity type for activities within a particular activity type, and 5) expand the type of leisure activities examined beyond only outdoor recreation activities.
ACKNOWLEDGEMENTS

I would like to express my appreciation to the individuals who most directly helped me complete my graduate work at Iowa State University. I am grateful to Drs. David Rogers and Richard Warren. Their aid during my prelims and dissertation was invaluable. Special thanks is extended to Drs. Wendell Beardsley and Gordon Bultena who worked with me on both the Masters and Ph.D. levels. I found both individuals constructive and pleasurable in their guidance of my work.

I had the pleasure of working with Dr. Dean Yoesting on both my Masters and Ph.D. degrees. Dean invested a tremendous amount of time, effort, and financial assistance to my education. These investments were provided through his guidance, friendship, and assistantships through my five year stay at Iowa State University. For this type of help I am greatly appreciative. I am most grateful, however, for Dean's flexibility which allowed me to expand educationally in many directions. Not all graduate students get the same opportunity that I had working with Dean.

Thanks to Dr. Brent Bruton and Karen Bruton for their friendship during my stay at Iowa State University as well as their last ditch efforts to get this dissertation in on time. Their friendship cannot be repaid.

My typist was Maxine Bogue who did an exceptional job under poor time constraints. For her efforts I am grateful.
Finally, thanks to my wife, Char. Like most wives, she suffered as much as I did from the many ups and downs that I experienced as a graduate student. My appreciation cannot be overestimated for her acceptance and understanding of this fact of life which exists in graduate school. I am not sure I would have been as patient.

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Gerstl, Joel E.

Graham, S.

Harmon, Harry H.

Hatt, Paul K. and C. C. North

Hauser, Philip M.
Havens, A. Eugene

Havighurst, Robert J.

Heilbrun, Alfred B.

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Merton, Robert K.

Meyersohn, Rolf

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Orzack, Louis H.  

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Outdoor Recreation Resources Review Commission  

Outdoor Recreation Resources Review Commission  
Outdoor Recreation Resources Review Commission

Outdoor Recreation Resources Review Commission

Outdoor Recreation Resources Review Commission

Owens, Gerald P.

Parker, Stanley

Parsons, Talcott

Pinchot, Gifford

Pope, Whitney, Jere Cohen, and Lawrence Hazelrigg

Proctor, Charles

Ramsey, Charles E., Robert A. Polson, and George E. Spencer
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Yoesting, Dean R. and Dan L. Burkhead  

Yoesting, Dean R. and Wendell G. Beardsley  
1Use of the cognitive dissonance model is intended to be heuristic. The dissonance model is used as a guide in order to discover or reveal variables which discriminate the substituting groups of recreationists from the nonsubstituting groups of recreationists. In other words, the dissonance model is valuable for this empirical research but the existence of dissonance as a causal factor in substitution of recreation activities is incapable of proof. For this reason, although the figures presented later appear in a causal format, no causal analysis will be conducted.

2An empirical investigation was conducted concerning the validity of this assertion. Respondents were asked to indicate their strength of agreement or disagreement to the two statements (1) "I prefer participating in activities in which I am familiar" and (2) "I enjoy experimenting with new kinds of recreation activities." The correlation of income, age, education, and occupational prestige with the responses to these two statements resulted in the following correlation matrix:

<table>
<thead>
<tr>
<th></th>
<th>Preference for familiar recreation activities</th>
<th>Preference for new kinds of recreation activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.1220</td>
<td>-0.2532</td>
</tr>
<tr>
<td>sign. = 0.034</td>
<td></td>
<td>sign. = 0.001</td>
</tr>
<tr>
<td>n = 225</td>
<td></td>
<td>n = 223</td>
</tr>
<tr>
<td>Education</td>
<td>-0.0840</td>
<td>0.1289</td>
</tr>
<tr>
<td>sign. = 0.105</td>
<td></td>
<td>sign. = 0.028</td>
</tr>
<tr>
<td>n = 224</td>
<td></td>
<td>n = 222</td>
</tr>
<tr>
<td>Occupation</td>
<td>0.0063</td>
<td>0.0424</td>
</tr>
<tr>
<td>sign. = 0.466</td>
<td></td>
<td>sign. = 0.282</td>
</tr>
<tr>
<td>n = 188</td>
<td></td>
<td>n = 187</td>
</tr>
<tr>
<td>Income</td>
<td>-0.1133</td>
<td>0.1778</td>
</tr>
<tr>
<td>sign. = 0.051</td>
<td></td>
<td>sign. = 0.005</td>
</tr>
<tr>
<td>n = 210</td>
<td></td>
<td>n = 208</td>
</tr>
</tbody>
</table>

In most cases the coefficients shown in the correlation matrix supports the inference that the value for change is related to social location.

3This idea suggests the existence of statistical interaction. That is, the amount of dissonance aroused by the substitution of recreation activities within an activity type would be dependent upon the interaction between the degree to which change is valued and the level of change represented by
the substitution. Low value for change combined with minor changes would probably produce little dissonance. Low value for change combined with major changes would produce high dissonance.

This type of interaction will not be investigated in this research for two reasons. First, the study is exploratory and consequently concerned with searching for possible main effects. Investigation of interactions usually follows the determination of main effects. Second, the particular statistical method to be used does not allow for interaction. Consequently, the investigation of the effects of interaction between variables on the substitution of recreation activities within activity types is suggested as a topic for future research.

Much of the information concerning the sampling procedures was written in a mimeograph by Mr. Harold Baker, Iowa State University Statistical Laboratory for Project 1951 of the Iowa Agriculture and Home Economics Experiment Station: Ames. 1973.

The activity types are not mutually exclusive: It was possible for any activity to appear on more than one activity type. Only one activity—swimming - lake, river, pond—loaded on two activity types.

The social location variables may have become important discriminating variables when childhood and present level of participation were dropped from the analysis because of the correlation between the discriminating variables. The following correlation matrix indicates that none of the social location variables were significantly related to childhood or present level of participation in "nature appreciation" activities. (See following table) The relationship between the social location variables and childhood and present level of participation in "nature appreciation" may have been strong enough, however, so that enough of the variance explained by childhood and present level of participation in "nature appreciation" activities may have been "picked up" by the social location variables to make the social location variables significant discriminating variables.

Dean Yoesting stated in an informal discussion that he had done a cluster analysis on the data. The results of the analysis were the same as they were for factor analysis. That is, the activity types were similar for cluster and factor analysis.
<table>
<thead>
<tr>
<th>Age</th>
<th>Education</th>
<th>Occupation</th>
<th>Income</th>
<th>Childhood level of participation in &quot;nature appreciation&quot; activities</th>
<th>Present level of participation in &quot;nature appreciation&quot; activities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-0.3157</td>
<td>-0.0358</td>
<td>-0.3615</td>
<td>-0.1214</td>
<td>-0.1153</td>
</tr>
<tr>
<td></td>
<td>n = 167</td>
<td>n = 137</td>
<td>n = 159</td>
<td>n = 156</td>
<td>n = 156</td>
</tr>
<tr>
<td></td>
<td>significance = 0.001</td>
<td>significance = 0.001</td>
<td>significance = 0.001</td>
<td>significance = 0.001</td>
<td>significance = 0.001</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.2396</td>
<td>0.3363</td>
<td>0.1374</td>
<td>0.1020</td>
<td>0.1066</td>
</tr>
<tr>
<td></td>
<td>n = 137</td>
<td>n = 159</td>
<td>n = 156</td>
<td>n = 156</td>
<td>n = 165</td>
</tr>
<tr>
<td></td>
<td>significance = 0.001</td>
<td>significance = 0.001</td>
<td>significance = 0.001</td>
<td>significance = 0.044</td>
<td>significance = 0.096</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.2334</td>
<td>0.0709</td>
<td>-0.1006</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 130</td>
<td>n = 129</td>
<td>n = 136</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>significance = 0.004</td>
<td>significance = 0.021</td>
<td>significance = 0.212</td>
<td>significance = 0.122</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0230</td>
<td>0.0268</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 148</td>
<td>n = 157</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>significance = 0.391</td>
<td>significance = 0.369</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.2341</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 154</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>significance = 0.002</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX A: ACTIVITY TYPES USED IN THE STUDY

Factor I: "games and sports" activities

Bicycling
Horseback riding
Baseball-softball
Football
Basketball
Volleyball
Badminton
Swim-outdoor pool
Swim-lake, river, pond
Motor bike-motorcycling
Attend outdoor sports events
Ice skating
Sliding, sledding, toboganning

Factor II: "hunting and fishing" activities

Target-trap shooting
Hunting (small game)
Hunting (big game)
Hunting (water fowl)
Fishing
Ice fishing
Factor III: "nature appreciation" activities

Hiking, walking for pleasure
Nature walks
Bird watching
Nature photography
Picking mushrooms, nuts, berries
Driving for pleasure-sight seeing
Family-small group picnics

Factor IV: "motorized" activities

Golf, regular
Camp-wheeled vehicle
Power boat-ski
Snowmobiling
Swimming-lake, river, pond

Factor V: "unmotorized travel"

Sailing
Canoeing
Snow skiing
APPENDIX B: ACTIVITY TYPES DERIVED EX POST FACTO TO COMPARE WITH THE ACTIVITY TYPES USED IN THE STUDY

Factor I: "hunting and fishing" activities
- Target-trap shooting
- Hunting (small game)
- Hunting (big game)
- Hunting (waterfowl)
- Fishing
- Picking mushrooms, nuts, berries
- Camp-wheeled vehicle

Factor II: "sports and games" activities
- Horseback riding
- Baseball-softball
- Football
- Basketball
- Volleyball
- Badminton
- Swim-outdoor pool
- Swim-lake, river, pond
- Sliding, sledding, toboganning
- Mountain, rock climbing
Factor III: "nature appreciation" activities

Hiking, walking for pleasure
Nature walks
Picking mushrooms, nuts, berries
Driving for pleasure-sight seeing
Family-small group picnics
Large group picnics
Gardening

Factor IV:

Bicycling
Snowmobiling
Canoe
Camp-tent

Factor V:

Soccer
APPENDIX C: QUESTIONS IN THE INTERVIEW SCHEDULE WHICH WERE RELEVANT TO THIS RESEARCH

Social Location Questions:

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Completed</th>
<th>Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1.
2.
3.
4.
5.
6.
7.
8.
9.

This question involves a comparison of recreational activities of Iowans as determined by family income. Will you please indicate the letter of the category for your family income before taxes in 1972?

a. _____Under 1000
b. _____1000-2999
c. _____3000-4999
d. _____5000-6999
e. _____7000-8999
f. _____9000-10,999
g. _____11,000-12,999
h. _____13,000-14,999
i. ____ 15,000-16,999  
j. ____ 17,000-18,999  
k. ____ 19,000-20,999  
l. ____ 21,000-29,999  
m. ____ 30,000 and over  

Childhood Level of Participation in the Five Activity Types:

1. From the following list of outdoor recreation activities, in which of these activities did you participate when you were 12 to 17?

2. (If the respondent did participate in some of the activities listed, the respondent was asked): Did you participate in each of the activities you indicated that you participated in during the ages 12 to 17 frequently or only occasionally?

<table>
<thead>
<tr>
<th>&quot;Games &amp; Sports&quot; Activities</th>
<th>Frequently</th>
<th>Occasionally</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bicycling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Horseback riding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseball-softball</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Football</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basketball</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volleyball</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Badminton</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swim-outdoor pool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swim-lake, river, pond</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor bike-motorcycling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attend outdoor sports events</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ice skating</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sliding, sledding, toboganning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>&quot;Hunting &amp; Fishing&quot; Activities</strong></td>
<td>Frequently</td>
<td>Occasionally</td>
<td>No</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------------</td>
<td>--------------</td>
<td>----</td>
</tr>
<tr>
<td>Target-Trap shooting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hunting (small game)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hunting (big game)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hunting (water fowl)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ice fishing</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **"Nature Appreciation" Activities** |            |              |    |
| Hiking, walking for pleasure      |            |              |    |
| Nature walks                      |            |              |    |
| Bird watching                     |            |              |    |
| Nature photography                |            |              |    |
| Picking mushrooms, nuts, berries  |            |              |    |
| Driving for pleasure-sight seeing |            |              |    |
| Family-small group picnics        |            |              |    |

| **"Motorized Activities** |            |              |    |
| Golf, regular              |            |              |    |
| Camp-wheeled vehicle       |            |              |    |
| Power boat-ski              |            |              |    |
| Snowmobiling                |            |              |    |

| **"Unmotorized Travel" Activities** |            |              |    |
| Sailing                       |            |              |    |
| Canoeing                      |            |              |    |
| Snow skiing                   |            |              |    |
Present Level of Participation in the Five Activity Types:

1. From the following list of outdoor recreation activities, in which of these activities did you participate between Memorial Day 1972 and Memorial Day 1973?

2. (If the respondent did participate in some of the activities listed, the respondent was asked): On about how many different days did you participate in each of the activities you indicated that you participated between Memorial Day 1972 and Memorial Day 1973?

<table>
<thead>
<tr>
<th>&quot;Games and Sports&quot; Activities</th>
<th>Yes</th>
<th>No</th>
<th>Number of Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bicycling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Horseback riding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseball-softball</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Football</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basketball</td>
<td></td>
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<tr>
<td>Volleyball</td>
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<td>Badminton</td>
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<tr>
<td>Swim-pool</td>
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<tr>
<td>Swim-natural</td>
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<tr>
<td>Motor bike-motorcycling</td>
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<tr>
<td>Spectator-sports</td>
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<tr>
<td>Ice skating</td>
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<tr>
<td>Sliding, sledding, toboganning</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>&quot;Hunting &amp; Fishing&quot; Activities</th>
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<tbody>
<tr>
<td>Target-Trap shooting</td>
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<tr>
<td>Hunting (small)</td>
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<tr>
<td>Hunting (big)</td>
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<tr>
<td>Hunting (water fowl)</td>
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<tr>
<td>Fishing</td>
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<tr>
<td>Ice fishing</td>
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</tbody>
</table>
"Nature appreciation" Activities | Yes | No | Number of Days
---|---|---|---
Hiking, walking for pleasure
Nature walks
Bird watching
Nature photography
Gathering specimens—mushrooms, etc.
Driving for pleasure—sight seeing
Family—small group picnics

"Motorized" Activities
Golf, regular
Camp—wheeled vehicle
Power boat—ski
Snowmobiling

"Unmotorized Travel" Activities
Sailing
Canoeing
Snow skiing

Ability or Willingness to Substitute Recreation Activities Within Each of the Five Activity Types With Similar Satisfaction:

1. Of the activities in the "Games and Sports" activity type, would you be just as satisfied to participate in other activities if you could not participate in those activities in which you now participate?
   ____Yes  ____No

2. Of the activities in the "Hunting and Fishing" activity type, would you be just as satisfied to participate in other activities if you could not participate in those activities in which you now participate?
   ____Yes  ____No
3. Of the activities in the "Nature Appreciation" activity type, would you be just as satisfied to participate in other activities if you could not participate in those activities in which you now participate?
   ___Yes   ___No

4. Of the activities in the "Motorized Activities" activity type, would you be just as satisfied to participate in other activities if you could not participate in those activities in which you now participate?
   ___Yes   ___No

5. Of the activities in the "Unmotorized Travel" activity type, would you be just as satisfied to participate in other activities if you could not participate in those activities in which you now participate?
   ___Yes   ___No