



Substitutability of recreational activities
by Teresa Anne Spencer

A thesis submitted in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE
in Psychology
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Abstract:

Recreation research, to date, has been problem-specific and scattered among a variety of fields. A unifying theory and an adequate methodology need to be developed. A theory of recreational substitutability (the concept that recreational activities may be substituted for each other under certain conditions) and a model of substitutability (which would define the necessary conditions) could help to fill both the theoretical and the methodological gaps. This thesis explores the concept of recreational substitutability and provides direction for the development of a model of substitutability. Data collected using a preliminary questionnaire exemplify the functioning of such a model. Concrete conclusions based on the data collected are limited, because a small sample and limited population were used and because the questionnaire was in a preliminary form. However, the general conclusions are formed and supported that substitutability is a viable concept and that the direction indicated for the development of the model is potentially fruitful.

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4 December 1975
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by

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of the requirements for the degree

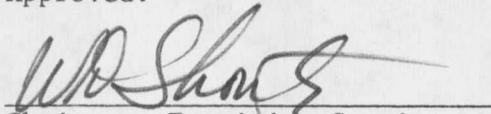
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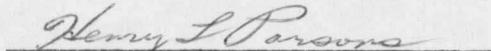
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Abstract

Recreation research, to date, has been problem-specific and scattered among a variety of fields. A unifying theory and an adequate methodology need to be developed. A theory of recreational substitutability (the concept that recreational activities may be substituted for each other under certain conditions) and a model of substitutability (which would define the necessary conditions) could help to fill both the theoretical and the methodological gaps. This thesis explores the concept of recreational substitutability and provides direction for the development of a model of substitutability. Data collected using a preliminary questionnaire exemplify the functioning of such a model. Concrete conclusions based on the data collected are limited, because a small sample and limited population were used and because the questionnaire was in a preliminary form. However, the general conclusions are formed and supported that substitutability is a viable concept and that the direction indicated for the development of the model is potentially fruitful.

Introduction

Americans are spending an increasing amount of time on recreational activities. As this participation increases, the necessity for understanding and predicting its consequences also increases. Each activity requires certain conditions (physical, monetary, etc.) and attracts certain types of participants. To the extent that two activities overlap in terms of these conditions or participants, they may be viable alternatives for some land-use or participation decisions. This concept that recreational activities may be substituted for each other under certain conditions is the concept of recreational substitutability. A model of substitutability, which would define the conditions necessary for the occurrence of substitution, is a potentially useful approach to predicting (and, hopefully, understanding) American recreational participation. This thesis will explore the idea of such a model.

Recreation Research

There is little adequate research available on recreational activities. What has been published is in scattered places under a variety of headings; the Outdoor Recreation Resources Review Commission (ORRRC) made this clear in its survey of outdoor recreation literature (Librarian of Congress, 1962). A recent Bureau of Outdoor Recreation (BOR) workshop (Van Horne, 1974) recognized this situation in its suggestion for a centralized recreation research retrieval system.

Most literature on the subject is strictly philosophical, although

this is certainly not unproductive (cf. Mead, 1962, and Frank, 1962).

Some studies have tried to cover recreational activities without trying to understand them, relying mainly on simple analyses of demographic data on participants (Stuart, 1974).

Some studies have tried to deal with the psychological aspects of recreation, but have used inadequate or inappropriate standardized tests or research designs or have failed to adequately interpret their results. Behrman (1967) has used the Guilford-Zimmerman Temperament Survey as a personality measure for determining differences between nonswimmers and swimmers. However, because the G-Z Survey was normalized on a predominantly college sample, it would be difficult to use on a general population such as that needed by recreation researchers. The G-Z Survey is also aimed at determining personality in a predominantly urban environment; much recreation occurs in a totally different context. More importantly, the aspects of personality tapped by the G-Z Survey tend to leave out many of the aspects important to recreation, such as conservationist and survival aspects. Lamphear (1970) has used the Minnesota Multiphasic Personality Inventory (MMPI) to relate personality characteristics and participation by college males in 43 outdoor recreational activities in terms of activity days per year. Activity days are only a partial measure of participation. Furthermore, the MMPI is less than satisfactory as a personality measure for such a study, being aimed primarily at determining personality abnormalities. Even when used with "normal" subjects, the MMPI is geared to be

interpreted in a non-recreational context. As with the G-Z Survey, the MMPI leaves out several characteristics which could conceivably be of greater use in studying personality in a recreational context.

Ibrahim (1971), also, has used the G-Z Survey. His study, like Behrman's, illustrates the inadequacies of a broad measure of personality. He also uses a broad definition of recreation, which includes all leisure-time activities, which means that he compares activities which may not be comparable in terms of the conditions in which they are undertaken. Ferriss (1970) indicates that there are personality-recreational correlates but does not interpret the data he presents.

Even physiologists have neglected individual recreational activities, despite the availability of the necessary methodology (Clarke & Clarke, 1970). Most authors merely highlight problems and weaknesses in the current research (Peterson, 1973).

The ORRRC both talked about and exemplified many of the problems. It drew the obvious conclusions that there is little backlog of quantitative data and no well-formulated, accepted set of measurement units (Commission Staff, 1962); there is not even an adequate or commonly accepted definition of leisure (Frank, 1962). However, the Commission apparently failed to realize that many of its own reports encourage a more serious problem: narrow-mindedness. Its reports on hunting (Department of Conservation, 1962) and fishing (Bureau of Sport Fisheries and Wildlife, 1962) deal mainly with the resource demands made by the two activities and have little to say about hunters and

fishermen, although the reports assume that such participation-related factors as population growth, population age changes, and increased urbanization affect these two activities. The ORRRC's report on prospective demand for outdoor recreation (Commission Staff, 1962) emphasizes the economic aspects almost to the exclusion of any other aspects.

Such weaknesses should be exposed, but an attempt should also be made to remedy them.

Some research has been based on the concept of "user satisfaction" as a predictor of participation in an activity (Hendee & Burdge, 1974; Shontz et al., 1975) or in a recreation area (Department of Resource Development, 1962). Although potentially useful, this concept is more limited than a model of substitutability; it could, in fact, be incorporated in such a model as a psychological measure.

Some writers approximate a substitutability approach. Ferriss (1962) indicates the need for such an approach. Levy (1974), stressing the complexity of human behavior, has tried to develop a mathematical model of leisure--which, unfortunately, is too abstract to be applied in practical situations. Hendee and Burdge (1974) discuss the substitutability concept itself, but define it solely in terms of user satisfaction.

Substitutability of recreational activities is a broad, interdisciplinary concept. Recreational activities are a complex subject. This is why the ORRRC could draw on so many disciplines and

still produce reports with large gaps. This is why definitions in the area of recreation are so difficult to specify: In an attempt to keep them short, most are either too vague or too narrow.

Outdoor Recreation

Recreation is a subdivision of "leisure." Leisure could be defined as ". . . all the time left over after survival activities . . ." (Nash, 1962, p. 158). It could be distinguished from "work" by its goals (Klausner, 1971). Leisure can be destructive, dissipative, or degenerative (Nash, 1962). Leisure, according to the Protestant work ethic, is a basically negative concept: Leisure is not-work.

The more positive concept of "recreation" has developed in contrast to this negative concept. Not all leisure is recreation. Recreation is purposeful; it ". . . is those activities which form an outlet to creativity, both in a physical and a spiritual sense" (Nash, 1962, p. 158). Recreation is complex in its demands; it may require definite plans, skills, or facilities (Stoddard, 1962). Recreation is beneficial to the participant, providing new physical skills, a change of environment, a reduction in tension, satisfaction of social needs, a creative release of energy, a chance for meditation, or satisfaction of other needs or desires (Mead, 1962; Mueller & Gurin, 1962; Nash, 1962).

Recreational activities can be divided into "participant" and "observer" activities. Participant activities involve the individual directly in the activity; they include such activities as hiking and crosscountry skiing. Observer activities--such as attending baseball

games and sightseeing—require little more than visual or oral participation.

Although there are dangers in defining observer activities as recreation (Mead, 1962; Nash, 1962), there are worse dangers in ignoring them. (The observer activity of sightseeing is included in this thesis, although it is coupled with the participant activity of photography.) Limitations in time, equipment, money, skills, and physical capacities may require a commitment to vicarious rather than direct participation in an activity, and may satisfy some of the same needs if the commitment level is high enough. Even when there are no such limitations, observer activities may, for other reasons, compete with direct participation for time, money, and effort. Furthermore, participant and observer activities are ends on a continuum, not a dichotomy.

Another useful distinction is between "natural" and "domesticated" activities. Natural recreation, as defined here, is usually found in rural environments because it requires space or facilities available only in relatively isolated, natural environments; such activities as backpacking, hunting, and crosscountry skiing are natural recreational activities. Domesticated recreation can be found in urban environments and makes few or no demands on nature for facilities; this includes such activities as tennis, bowling, and basketball.

Natural and domesticated activities are also at the ends of a continuum. Domesticated recreation may occur in a supposedly rural environment if the facilities are available, such as at a resort or dude

ranch, or with slight modifications, such as bicycling on smooth hiking trails. A few natural activities, such as dayhiking, can be transplanted, with modifications, to an urban environment. Some activities are natural or domesticated depending on the environment used--such as motorboating, which can be done on a wild lake or on a manmade reservoir, or swimming, which can be done in a natural body of water or an artificial swimming pool.

With increasing development of natural areas, many basic distinctions between natural and domesticated activities are being blurred, and it is becoming harder to find the opportunity to participate in a truly natural activity; an investigation of recreational motives and skills might help redirect area use to maintain a broad range of opportunity (Hendee, 1970).

Stankey (1972) elaborates on this problem of the evolution of recreational activities and areas to suit the "average" participant. He points out that areas such as wilderness are intended for people with certain characteristics and that management should be guided by the needs of only such people:

Treating wilderness visitor responses in an indiscriminating fashion could lead to both inequitable and inefficient allocations. Only those visitors whose needs and tastes lie "on the average" would be satisfied, and it is precisely this type of visitor who can most easily be accommodated elsewhere. Furthermore, there is probably a high degree of substitutability among alternatives

associated with this type of visitor's preferences. At the same time, we would fail altogether to allocate opportunities for those who seek an experience associated only with environments of a near-natural state--locations that are of limited availability and beyond our capability at present to produce (pp. 93-94).

Management has to find an alternative to its present policy of bringing all activities and areas to the common level if it is going to please anyone but the fictitious average participant. Furthermore, as population size and urban densities increase, the general public will become less discriminating in its attitudes toward traditional wilderness values. If management guidelines are designed to accommodate these gradually less demanding, average tastes, the unique wilderness experience will eventually be completely destroyed. This is one more example of why research is needed now on alternatives in recreation.

For simplicity in dealing with subjects, this thesis has used the word "outdoor" instead of "natural." An outdoor recreational activity (ORA) is defined here as any activity, commonly viewed as a recreational activity occurring outdoors and pursued in leisure time, which can be subsumed under a single, commonly recognizable name and which is defined so that it has at least one element represented by no other activity considered.

The activities selected for this thesis include only those ORAs found in the Gallatin Canyon, a semi-primitive area in southwestern Montana (although subjects were asked to respond in terms of their total

participation, regardless of whether they had ever engaged in these activities in Gallatin Canyon). Of the activities considered, some were omitted as difficult to define with proper scope (camping, bicycling, swimming, and off-road vehicle use) and some were omitted because it would be difficult to obtain an adequate participant sample (ice climbing, kayaking, canoeing, inner tubing, rafting, rowboating, sailboating, motorboating, water skiing, and ski mountaineering). Seventeen activities were chosen, defined, and numbered (for reference later in this thesis) as follows:

1. Dayhiking: Walking which requires one day or less, no special training, and no special equipment.
2. Backpacking: Walking which requires more than one day and transport of supplies on one's back.
3. Mountain Climbing: Hiking over mountainous terrain (1000' gain per mile, at least 3000' gain overall), usually with little or no trail.
4. Rock Climbing: Hiking or climbing on rocks.
5. Snowshoeing: Use of snowshoes for recreation.
6. Downhill Skiing: Going up hill and skiing down, usually at ski resort.
7. Crosscountry Skiing (Ski Touring): Skiing which includes flat or gently rolling terrain and usually not many long or steep slopes.
8. Gun Hunting: Tracking, stalking, or otherwise looking for game from the ground with intent to shoot it with gun.
9. Bow Hunting: Tracking, stalking, or otherwise looking for game

from the ground with intent to shoot it with bow and arrow.

10. Fishing: Attempt to catch living fish in non-stagnant water.

11. Day Trips on Horseback: Trips on horse which require one day or less.

12. Pack Trips on Horseback: Trips on horse which require more than one day and transport of supplies on own horse, pack horse, or pack mule.

13. Trail Bike Driving: Driving trail bike off main street, highway, or vacant lot. (In other words, driving trail bike somewhere like Forest Service trail.)

14. Snowmobiling: Use of snowmobile for recreation.

15. Sightseeing and/or Photography of Landscape: Going to area with objective of sightseeing and/or photographing landscape and/or vegetation.

16. Sightseeing and/or Photography of Wildlife: Going to area with objective of sightseeing and/or photographing wildlife.

17. Sightseeing and/or Photography of Human Activity: Going to area with objective of sightseeing and/or photographing human activities and/or evidence of human presence.

Ski touring was combined with crosscountry skiing because the differences between them are slight; in common usage the two terms are often interchanged.

Activities #15, #16, and #17 were differentiated because pilot work indicated that they are indeed different activities--occurring under

different conditions, participated in by different people, and viewed differently.

Some of these activities are well-defined in common usage (such as fishing); some even experts do not define consistently (such as mountain climbing). Some are best defined in terms of objective (such as mountain climbing), some in terms of equipment used (such as snowshoeing), and some in terms of necessary skills (such as dayhiking). Some are frequently defined by comparative reference to particular locations (such as downhill skiing or mountain climbing). Complete definitions would include all of these elements for all of the activities, but would be too long and cumbersome for use on a questionnaire aimed at the general public.

The Idea of Substitutability

The available literature indicates an increasing demand for recreation. Increasing availability of fixed vacations and long weekends (Mead, 1962); more and better transportation facilities-- leading to greater mobility and decreased perceptual distances-- (Goldenthal, 1962; Mueller & Gurin, 1962); increasing urbanization-- with its attendant need to escape ever-present urban tensions--(Goode, 1962; Heimstra, 1974); increasing availability, through technological improvements, of good, inexpensive, recreational equipment (Hauser, 1962); increasing leisure time (Commission Staff, 1962): These changes (among others) increase the demand for recreation.

This then is the picture of the future: More people taking more

vacations, learning more about vacations and recreation, developing a wider range of skills and making more demands on every kind of recreation area, and rearing a generation of outdoor-minded children who will have even more skills and make even more demands (Mead, 1962, p. 22).

Balanced against this increasing demand is a finite--and, in some cases, decreasing--amount of facilities, especially for outdoor recreation. Cicchetti (1972) demonstrates this vividly. Hauser (1962) explains that the increases in population size and concentration and the changes in population composition (such as altered household composition and increased median age, educational level, and white collar labor force) are contributing to an overloading of available recreation areas. As areas become overloaded, motives for using them may no longer be satisfied. For example, city stresses may become part of an area that was sought for release of those very stresses (Heimstra, 1974), perhaps leading, in turn, to a frustration which increases the original stresses. The same may be true of activities--such as skiing--as they evolve from a natural to a domesticated status. Such changes in areas and activities may force changes in participation preferences--and, therefore, in demand patterns. Such changes must be considered in planning.

The situation is particularly acute in those areas classified as wilderness. There is

. . . an increasing number of people seeking a primitive kind of

recreational experience in a type of area that is limited in supply and whose reproduction is largely beyond our technical-economic capabilities. The issue is further complicated by the institutional constraints of the Wilderness Act: these preclude the options of either letting use continue unabated or totally restricting use. The objectives of this Act necessitate managerial action; the question confronting us concerns the specific nature of that action (Stankey, 1972, p. 90).

Hendee (1970) and Driver (1972) concur. Because use changes an area, managers need to know why an area is perceived as wilderness (or why an activity is perceived as wildernistic) and what the relationship is between an area's (or activity's) physical characteristics and its users' affective states (Heimstra, 1974).

This is one reason why adequate research on recreation--and on leisure activities in general--is essential: Viable alternatives must be found to relieve overuse of current facilities all along the continuum from wilderness to bowling alleys.

There are two approaches to this problem: (1) Find out what people are doing now and try to help them continue doing it. (2) Also find out why people are doing what they are doing and what else they could be doing to achieve the same goals, and help them to achieve their goals in the best way for everybody.

The first approach could handle some of the current recreation research needs. For instance, it could identify the facilities needed

right now by certain types of people, such as teenagers, whose needs have long been neglected (Mead, 1962). It could also aid educators and the mass media in preparing people for recreation, in terms of attitudes, understanding, knowledge, general skills, and specific skills (Kaplan & Lazarfeld, 1962; Smith, 1962). One problem with this approach is that a limit is soon reached beyond which no more facilities can be provided; wilderness is one example, already mentioned, of such a finite resource. This approach will not solve the problem when the demand for facilities exceeds their supply.

An important advantage of the second approach is that it provides rationale for the channelling of recreational activity away from overcrowded facilities. It also provides for predictable preference changes--as when new roles develop for the various sexes, age levels, and family members (Goode, 1962). Increased education, time, and income lead to an increased range of activities in which an individual can participate (Mead, 1962); because all three factors are increasing in the general population, the second approach could facilitate a shifting of participation to less crowded or more satisfactory activities. Also, as more whole families seek recreation areas, the need for multi-use areas, with a variety of activities available in the same general vicinity, will increase (Goode, 1962; Mead, 1962).

The second approach is a substitutability approach. Klausner (1971) hits the core of the idea of substitutability when he remarks that the demands of a situation may be satisfied by a variety of devices--

that is, a rescue operation in moderate snow might be performed using either a horse or a snowmobile, depending on which is readily available and whether there are any extenuating circumstances.

Romsa (1973) has experimented with clustering activities according to general participation patterns and determining the socioeconomic characteristics of the participants in each of the clusters.

The value of such an approach is readily seen. Consumption patterns can be clustered into manageable, fairly homogeneous recreational activity groups. The demands of each group can then be inferred and policy formulated on the basis of these demands. Furthermore the relationships between socioeconomic indices and the consumption patterns are shown. Thus, as the indices change, adjustment on the supply can be made as required (p. 35).

However, the scope of his model is limited in terms of the activities and socioeconomic variables used and in the disregard of variables associated with the activities themselves. It would be difficult to adapt Romsa's model to include anything he has omitted.

Hendee and Burdge (1974) also present the substitutability concept.

They note four of the possible research questions:

1. What are the relationships between different kinds of leisure activities and the settings in which they occur?
2. Are there conceptually related types of leisure activities that are potential trade-offs for one another with minimal loss of satisfaction to the participant?
3. What trade-offs and substitutions among leisure

activities are made as people grow older and as opportunities change? 4. To what extent and why are trade-offs between activities made and what are the resulting changes in leisure-related satisfactions and benefits? (pp. 157-158).

Hendee and Burdge point out that the time is already at hand for this concept to be used. "When use of recreation opportunities such as campgrounds or wilderness is limited by advance reservations or quotas, the search for substitutes is very real for the person excluded" (p. 161). Furthermore,

the current concern by recreation managers over excessive crowding, disregard for environmental values, and preference for inappropriate facilities and activities may reflect the selection of outdoor recreation by persons whose leisure interests might reflect other priorities. The popularity and overuse problems in outdoor recreation areas may thus be due in part to the presence of people seeking leisure satisfactions that might be, but are not, met elsewhere (p. 160).

Participants in the BOR workshop on outdoor recreation research needs (Van Horne, 1974) listed substitutability as the highest priority research task, with an emphasis on psychological substitutability among outdoor recreation activities. Also listed as high priority was research on substitutability among recreation sites, resources, and facilities.

Hendee and Burdge (1974) suggest that too much recreation research is aimed at just outdoor recreational activities. Hauser (1962) makes

the same point when he states, "Outdoor recreation behavior must necessarily be analyzed as one form of leisure time activity. As such, any attempt to estimate the future outdoor recreation behavior of the American people must be considered in the context of alternative forms of leisure" (p. 28).

However, in studying recreation a start has to be made somewhere and there are good reasons for starting with outdoor recreation. Hendee himself makes this point:

If we accept the pessimistic view that natural environment values appeal predominantly to an affluent minority and, for one reason or another, more people are relatively indifferent to nature, one might question the legitimacy of our concern. . . . A good reason may be that recreational activity in the natural environment, by its contrast with other areas altered by man, is stimulating and spearheading political activity by an alarmed minority who are outraged over society's alteration of basic environmental resources such as air, water, vegetation, and open space. Natural areas are also valuable to science as ecological bench marks, but it is only through recreational activity that more than a relative handful of persons see firsthand or experience anything approximating the ecological conditions from which their living environment has deviated. Although it may be a self-righteous position, natural areas providing recreational activity serve the interest of all citizens if they help sustain political efforts to

control within liveable dimensions the alteration of environmental resources affecting everyone (1970, p. 36),

At stake is much more than recreational desires: At stake is the everyday living and working environment, as well.

Another good reason is found in the very fact that most recreation research to date has been concerned with outdoor recreation. What little usable theory and methodology there is right now is found in that research and needs to be developed so that such research can eventually turn to recreation as a whole.

There is an evident need for recreation research. There is an equally evident lack of appropriate methodology. A practical model of substitutability could fill the methodological gap. Because there is justification for beginning with research on outdoor recreation, this thesis will use outdoor recreational activities in its presentation of such a model. There need by no such limitation placed on the ultimate model.

Substitutability Theory

Substitutability is a concept of viable alternatives. It refers to the possibility of substituting activities for each other under certain conditions. A model of substitutability would define each activity considered; define the conditions required by the activity, the conditions inadmissible by it, and the conditions which facilitate (but are not required by) or hinder (but are not prohibitive for) the activity; and specify the characteristics required of and displayed by

the participants. From this model could be deduced the overlap among activities. To the extent that two activities overlap (barring any definitely incompatible conditions), they may be substituted for each other--under, of course, the proper conditions. Perfect overlap would be quite rare and would probably indicate two activities which would eventually become so closely associated that they would be commonly perceived as one activity.

One assumption on which substitutability theory is based is stated by Ferriss (1962), who voices his expectation to find predictable recreation participation patterns for individuals. If there are no such predictable patterns, the whole model is impractical.

Associated with the substitutability concept are the ideas of compatibility and conflict (Wager, 1964). When two activities have the same environmental requirements and draw from populations of participants which are not grossly different, they may be compatible: That is, they may occur together without loss of satisfaction to the participants. However, when there are any gross or basic discrepancies between two activities, they can be said to be in conflict. For example, crosscountry skiers are noted for having extremely different attitudes about snowmobiling than do snowmobilers, so these two activities are probably in conflict. If the substitutability model is set up correctly, both compatibility and conflict can be predicted with it.

Another related concept is that of recreational succession, the idea

that the kinds of people using an area will change as current users discover that the activities available in that area no longer meet their needs. For instance, as a natural area is developed, wilderness purists will no longer frequent the area; instead, participants in more domesticated activities will be more likely to use it (Stankey, 1972; Shontz et al., 1975). The term "succession" may also refer to changes in individual participation patterns due to any of a number of factors; this usage is also related to the substitutability concept.

In order to determine the amount of substitutability among activities, the activities must be compared. As Hendee and Burdge (1974) point out, this comparison has been attempted in a variety of ways. Klausner (1971) suggests three broad areas of comparison: man's relation to nature, man's relation to other men, and man's relation to himself.

These, however, provide an insufficient basis for a model of substitutability. Ferriss (1962) says that "characteristics of the activity may predetermine or condition participation in the activity. These characteristics are considered in terms of the limits they specify" (p. 5). The characteristics of both the activities and the participants must be considered.

There are at least six dimensions which affect substitutability: environmental requirements, skill factors, physiological requirements, resource requirements, demographic patterns of participants, and psychological patterns of participants. At least these six must be

considered in a substitutability model if it is to be accurate.

Environmental requirements. Every ORA occurs in some kind of physical setting. There are five basic areas of environmental comparison: geography, climate (weather and season), vegetation, wildlife, and constructed facilities. All five areas may have facilitative or prohibitive aspects.

The Department of Resource Development at Michigan State University (1962) has used a 30-block geographical classification of the areas they have studied: topography (flat, rolling and hilly, or mountainous), water (contiguous to or including bodies of water, bordering a stream, no significant water features, or--added for mountainous topography only--no significant water features but emphasis on snow conditions), and vegetation (treeless, mixed tree and open space, or forested).

Litton et al. (1972) have developed a comprehensive water inventory which has possibilities but needs refinement before it can be used effectively in a substitutability model.

There are other ways geography could be inventoried, but at present there is no totally satisfactory way. This is a common complaint in literature dealing with studies of the perceived physical environment.

The Wildland Research Center at the University of California (1962) indicates that seasonal analysis is important, but does not discuss in detail how it can be accomplished.

When constructed facilities (such as boat ramps or ski lifts) are

necessary for an activity, their lack or inaccessibility may be a barrier to participation in that activity (Mueller & Gurin, 1962). It has already been noted that rising participation may lead to overcrowding, which will make existing facilities inaccessible to some potential participants. Obviously, then, the necessity for facilities may be a constraining characteristic for an activity.

The lack of constructed facilities may discourage participation by some individuals, while their presence may encourage others. For instance, hiking purists may shun areas which contain paved trails and outhouses, while less committed hikers may prefer such areas. This indicates the interrelatedness of the dimensions: Environment seems to be highly correlated with demographic, psychological, and physiological factors.

Some activities have more specific needs than others. For instance, it is possible to hike almost anywhere, at any time, under any conditions; but downhill skiing requires a cleared hill covered with snow and fishing requires water in which game fish are able to live.

Skill factors. Each ORA requires or is enhanced by certain general skills--such as adequate visual acuity or walking ability--and certain particular skills--such as the ability to tie a square knot. Some of the skills are learned--such as proper use of a jackknife--but some, although trainable, may be basically innate--such as sense of direction. Each ORA also requires or is enhanced by certain types of knowledge--such as knowledge of first aid or emergency procedures.

Each ORA can be divided into skill categories which are differentiated in terms of skills and knowledge. For instance, a beginning hiker might know nothing except what a trail looks like and might have no skills other than a general ability to walk. A slightly more advanced hiker might, in addition, know how to ford a stream safely and be able to read a compass or trail map.

Objective, although not a skill or knowledge, is frequently closely connected with skill and may be combined with skill categories. For example, a gun hunter whose primary objective in hunting is to provide all his family's meat for the year is probably a fairly knowledgeable, skilled hunter. A beginner who starts a hunt with this objective will soon find (unless he is extremely lucky) that his objective is grossly inappropriate. Objective can be treated in conjunction with skills and knowledge in defining skill level; but it must be treated subordinately, and might, perhaps, be treated better separately, as a psychological factor.

Another possible factor in the definition of skill levels concerns the results of the activity (which may not agree with the objectives). Nash (1962) suggests a continuum of results with six labeled points ranging from acts against society to creative participation. This, like objective, can perhaps be handled more effectively as a psychological factor, although it may be closely tied to skill and knowledge in many cases.

There has been much published commercially about the skills and

knowledge helpful in individual ORAs. This information needs to be compiled in such a way that overlap among activities can be readily seen. Many participants may not realize that they could easily learn a new activity by simply transferring their present skills and knowledge to a new situation and learning anew a small amount. This has important implications for recreational educators: They could conceivably isolate basic skills (such as tying a square knot) which are applicable to a large number of activities and concentrate on teaching these first, emphasizing their use in a variety of activities.

Skill levels are not totally stable. Goode (1962) writes at length about American outdoor skills. He notes that the beginner's natural desire to excel at something immediately and effortlessly, and the equally natural desire to increase satisfaction while decreasing risk; have combined with modern technology to produce good, inexpensive equipment that lets beginners tackle recreational tasks which were previously the realm of the advanced. Yet the main difference here is equipment; the beginners have not really increased their skill level in the old sense. Mead (1962) puts it well:

Especially in this generation many Americans have learned--and unquestionably many more will learn--to become do-it-yourself amateurs at many things from repairing leaking faucets and drainpipes to building furniture and even houses; but to an increasing extent they are using specially prepared materials and are becoming dependent on a whole new set of experts, on whose

