THE IDENTIFICATION AND EXPLICATION OF A TYPOLOGY
OF ADOLESCENTS' LEISURE FUNCTIONING

DISSERTATION

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By

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This study involved the identification and explication of a typology of adolescents' leisure functioning, based on a state of mind definition of leisure. Subjects included 200 students from a junior high school in the midwest who completed the Leisure Diagnostic Battery (LDB) during a study hall. Procedures involved the application of two methods of cluster analysis to profiles of scores across the five LDB scales which are designed to measure perceived freedom in leisure. Following this process of identification and validation of the "types," the relationship between group membership and various barriers to leisure were examined through multiple discriminant analysis. Finally, between type differences on three preferred style of participation in recreation activity variables (active/passive, individual/group, and risk/nonrisk) were examined through the analysis of variance. Six homogeneous groups were identified. Profiles of scores of each of the types differed in a meaningful way. Type 1 individuals, for example, seemed to be functioning very well at leisure. Their profile of scores had a flat appearance, with very high means on the five measures of
perceived freedom. In addition, they scored significantly higher than other types on measures of availability of leisure resources and gregariousness/sociability. Type 4, on the other hand, had the lowest mean score profile of the six types. That type scored highest on the measure of perceived leisure competence and they scored lowest on the measures of playfulness and perceived leisure control. Type 4 individuals were also less gregarious and they indicated the presence of fewer leisure resources in their environment than members of other groups. Numerous questions for future research were raised and results were discussed in terms of implications to recreation leadership and to the provision of therapeutic recreation services.
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Introduction

The classification of people into homogeneous groups has provided guidance to practice in virtually every field of study. In medicine, physicians diagnose, or classify, patients according to the presence or absence of particular signs and symptoms. In psychology, personality theorists have guided the practice of psychotherapy by identifying similarities and differences among groups of people, thereby seeking to achieve "... an overall account of the functioning of persons" (20, p. 9). In education, researchers have examined the possibility that "psychoeducational profiles" may be useful in developing an understanding of troubled students (11). One long term goal of such efforts is to provide practitioners with specific guidelines in their efforts to diagnose and plan treatments for clients with particular problems.

Despite the useful guidance classification activity has provided to practitioners of other fields, only a few classification efforts have been undertaken in the recreation and leisure field (29, 26, 5, 6, 19). Each of these has relied heavily on an "activity" view of
leisure (22). This view assumes that leisure is best described by the recreation activities in which one participates. In Duncan's (6) study, for example, five leisure types were identified, all but one of which centered around participation in indoor recreation activities. The results of such investigations are intended to be of particular value to recreation planners in the development of market segments.

Leisure, however, has also been defined as a state of mind, and a need has become evident for focusing attention on the nature of this state of mind (21, 15, 23, 17, 16, 28). The identification and examination of leisure types based on a state of mind view of leisure could contribute to the development of theory to "account for the functioning of people" (20, p. 9) in leisure. This theory, in turn, could provide needed guidance to recreation leaders and recreation therapists, who are concerned with facilitating the leisure functioning of clients in a variety of settings. Thus, the examination of leisure types, based on a state of mind view of that concept, could contribute to both theory development and to practice. The problem associated with this investigation, therefore, was as follows.
The Problem

Statement of the Problem

The problem with which this investigation was concerned was the development of theory to account for individuals' functioning in leisure, based on a state of mind view of that concept.

Purpose of the Study

The purpose of this study was to identify a typology of leisure, from a state of mind view of that concept, and to propose developmental factors, peripheral characteristics (20, pp. 13-17), and therapeutic recreation treatment implications associated with each leisure type.

Hypotheses

H1: Valid and interpretable homogeneous clusters of individuals will be found from profiles of scale scores across measures of perceived leisure competence, perceived leisure control, playfulness, ability to satisfy needs through participation in recreation activities, and depth of involvement in leisure experiences.

H2: Significant canonical variables based on measures of personal and environmental barriers to leisure will be found which maximally discriminate among the identified types.

H3: Identified leisure types will differ significantly on measures of preferred style of participation in recreation activities.
The first of these hypotheses suggests the identification of the typology while the second two provide discriminanting variables which may be helpful in interpreting the types and proposing developmental factors and peripheral characteristics (20, pp. 13-17).

**Definition of Terms**

For the purpose of this study, the following terms require clarification:

**Type.** A type was defined as a group of two or more people who were more similar among themselves than they were to other individuals and other groups, based on a given set of variables.

**Typology.** A typology was defined as a collection of two or more types.

**Recreation.** Recreation was defined as a free time activity in which an individual voluntarily participates, and from which he may receive a number of benefits and satisfactions (3, p. 7).

**Leisure.** Leisure was defined as a state of mind characterized by pleasure and perceived freedom (27, 21, 23, 14, 15, 17).

**Delimitations**

Data used in this investigation were collected in the final phase of development of the Leisure Diagnostic Battery. Those data were obtained from 200 twelve to
fourteen year old students (average age 13.2, 52 per cent male) in Columbia, Missouri. Although the correlations among variables and the distributions of scale scores from that data set are very similar to the correlations and distributions of scale scores derived from earlier rounds of developmental testing (7), generalizability may be limited to the population of 12 to 14 year old students in Columbia, Missouri.

Background

Leisure as a State of Mind

The idea that leisure may best be described as a state of mind has been traced to ancient Greece (16, p. 23). "Greek philosophers," Kando (16, p. 23) has stated, ". . . formulated a leisure ideal that stressed not lavish material consumption . . . but the pursuit of spiritual enlightenment." Aristotle felt that leisure was a freedom from labor and that one could think of leisure as " . . . having in itself intrinsic pleasure, intrinsic happiness, intrinsic felicity" (4, p. 63).

Viewing leisure as a feeling has been pervasive through the centuries. "Leisure," Witt (32) recently stated, " . . . is the opportunity for coming close to the purpose and meaning of life . . . (it is) the feeling one gets when in the process of learning, of expressing, of creating." Other writers and investigators have echoed these thoughts
and have identified a condition of "perceived freedom" as being the critical factor in determining whether or not a feeling of leisure may occur (23, 15, 21, 17).

Recently, an investigation of the nature of leisure was conducted (7), assuming a state of intrinsic pleasure, or "felicity" (4, p. 63) to be a description of leisure, and perceived freedom as the "one and only one essential criterion" for its presence (23, p. 15). That study hypothesized four component parts of perceived freedom in leisure: perceived leisure competence, perceived leisure control, playfulness, and intrinsic leisure motivation. Individual scales were developed to measure the first three of these components, while the fourth was measured through two scales. One of these was a measure of the extent to which individuals were able to satisfy intrinsic needs through recreation activities. The other was designed to measure the affective dimension of intrinsic leisure motivation (17, p. 38-55) and was considered to be a measure of the extent to which individuals were able to achieve a depth of involvement in their recreational pursuits. A principal axis factor analysis suggested that the scales formed a single dimension, as hypothesized, and correlations of the factor score with other variables provided further evidence of validity. Perceived freedom, therefore, seems to be an integral and measurable part of a state of mind view of leisure.
Although investigation of the components of perceived freedom suggested that perceived leisure competence, perceived leisure control, playfulness, ability to satisfy needs, and depth of involvement in leisure tend to converge on a unitary concept, results also left open the possibility that scores on these measures could covary differently within subgroups of the sample. Correlations between the factor and the five variables (factor loadings) ranged between .40 for playfulness to .70 for perceived leisure competence. The "perceived freedom" factor, therefore, explained only 16 per cent of the variance of the playfulness variable and 49 per cent of the variance of perceived competence. As Nunnally (24, p. 452) has pointed out, meaningful subgroups may exist even when correlations among variables "are substantial." Thus, while the results of the factor analysis supported the hypothesis concerning the nature of perceived freedom, they did not preclude the possibility of identifying homogeneous leisure types from this state of mind view of leisure.

Toward a Theory of Leisure Functioning

Four components are included in most theories which seek to account for the functioning of people (20, p. 9). According to Maddi (20), these components include the following: (1) a core statement, (2) a developmental statement, (3) a peripheral statement, and, (4) a data
statement. Before attempting an initial development of theory explaining the functioning of people in leisure, it will be useful to consider each of these components.

As Maddi (20) has pointed out, the "core statement" of a theory "... delineates the things that are common to all people and discloses the inherent attributes of human beings" (20, p. 14). Two parts of a core statement may be considered: (1) a statement of core tendencies and (2) a statement of core characteristics. A statement of core characteristics proposes a pervasive factor which is common to everyone, is stable over time, and exerts an "extensive," basic influence on behavior (20, p. 14). In White's (31) theory, this statement might be that people have the tendency to produce effects through their actions and that people attempt to achieve competence in their functioning (31, p. 722). In Fiske and Maddi's theory a statement of core tendency might be that people attempt to maintain a level of activation to which they are accustomed (20, p. 730).

Statements of core characteristics differ from statements of core tendencies in that they "explain not the movement toward the goals ... but rather the fact and content of goals and requirements" (20, p. 10). In White's theory (32), for example, a statement of core characteristics would include an association of information seeking behavior with effectance motivation and a "sense of
competence" with competence motivation (20, p. 722). Thus, a statement of core characteristics, in part, delineates the content of the core tendencies.

In many theories of personality, a "developmental statement" follows the core statement. This statement describes the interaction of the core tendency with influences of the outside world (20, p. 16). Influences which might be discussed in a developmental statement include the effects of parents, teachers, relatives, peers, cultural norms, and perhaps, play leaders. At this level, therefore, a theory begins to propose influences which may cause people to behave differently despite a common core tendency and common core characteristics.

A discussion of the results of these influences, a typology, occurs with a "periphery statement" (20, p. 16). According to Maddi (20, pp. 14-16), a periphery statement consists of a typology and "concrete peripheral statements." In proposing a typology, the theorist is making a statement about possible ways of life that can be acquired through learning (20, p. 15). Typically, one of these ways of life will be endorsed by the theorist as being preferred, or ideal. In Fiske and Maddi's theory (10; 20, pp. 730-731), four types are proposed: (1) the high activation person with active and external traits, (2) the high activation person with active and internal traits, (3) the low
activation person with active and external traits, and, (4) the low activation person with active and internal traits.

The second part of a periphery statement, the "concrete peripheral characteristics," describes "... the smallest most homogeneous explanatory elements the theorist believes are possible" (20, p. 15). Typical concrete periphery characteristics include obstinancy, independence, task orientation, and need for achievement.

The most basic level of the theory is the data statement. This level describes those behaviors that are unique to the individual and distinguish each person from others (20, p. 16). The data statement is, therefore, the polar opposite of the core tendency. Whereas the former describes basic influences which are common to all, the data statement describes the thoughts, feelings, and actions which are unique to the individual (20, p. 16). Generally, data statements are of interest to the theorist only in that they must be distinguished from more general tendencies which are common to different personality types.

Given the above, a theory of people's leisure functioning can be formulated. The theoretical formulation begins with the simple core statement that in leisure, people seek pleasure. This statement is consistent with the criterion that requires a core statement to propose a
basic tendency which is universal in nature. As Smith (27) has pointed out, pleasure is a neurophysiological phenomenon which is associated with particular structures within the limbic system. Pleasure, therefore, is common to all people.

Pleasure is not only common to all people, but is also seems to be a very powerful drive in mammals. Rats have been found to forgo such physiological needs and drives as food, water, and sex, even to the point of death, in order to receive electrical stimulation of the limbic system (25).

In humans, a series of studies by Heath (12; 27, p. 52) indicated that electrical stimulation of the limbic system produced feelings of euphoria which "... lasted anywhere from a few hours to several days." "Pleasure," Smith has stated "... is the answer to why people play ... (it is the) common denominator in recreation which makes historical and cross-cultural studies academically meaningful and intriguing" (27, p. 50-51).

Given pleasure as a statement of core tendency, the next step in the development of a theory of individuals' functioning in leisure would be the proposal of core characteristics. Based on the extensive support for the concept (15, 4, 2, 32, 21, 23) it seems reasonable to assume that perceived freedom is a core characteristic which describes the content of pleasure. Perhaps the empirical evidence most directly in support of this position is provided
by Iso-Ahola's (14; 15, pp. 187-189) quasi-experiments, which suggested that perceived freedom is closely related to individuals' perceptions of the quality of their leisure experiences. Based on these results, Iso-Ahola (15, p. 189) concluded that perceived freedom is a common characteristic of leisure which "... holds true of people, situations, and time."

Given pleasure and perceived freedom as the components of the core statement, a number of characteristics of the developmental statement evolve. Most of these have been proposed as a part of an effort to suggest a means by which individuals' leisure functioning may be enhanced (9; 15, pp. 195-199). Barriers such as overbearing time obligations, lack of social skills, and lack of available resources may prevent an individual from being able to satisfy needs through recreation activities (17). A history of failure or perceived failure in free time pursuits may lead to a low perception of competence in leisure (17, pp. 14-27; 15, pp. 332-334). Overdirective "tutors," such as parents, teachers, and recreation leaders may restrict an individual's degree of perceived control and playfulness (1, 18, 9). A lack of novelty, a lack of complexity, or too much environmental "noise" may restrict the extent to which an individual achieves depth of involvement in activities (8; 17, pp. 39-55). These interactions between
the core and the periphery of the theory could produce a variety of "leisure types."

Little is known, however, of how these developmental characteristics may interact with the core of the theory to produce the peripheral elements. Patterns may exist among developmental factors whereby certain "leisure types" are formed and certain core characteristics are learned. Limitations on the complexity of the play environment imposed by apartment dwelling, combined with an optimally directive (1) parent might, for example, produce a leisure type which was high in playfulness, perceived leisure competence, and perceived leisure control, but low in ability to satisfy needs through recreation and low in ability to achieve depth of involvement in activities.

Type of dwelling and directiveness of tutors, however, are only two of myriad developmental factors which may produce a typology of leisure. Rather than speculating about these and systematically sorting out the salient factors over time, it would seem reasonable to start with an examination of leisure types and work backward. Once an understanding of a typology is achieved, one could hypothesize the developmental causes of each type and systematically eliminate those causes which were not predictive.
In addition to the theory development to which such a study would contribute, many related benefits might emerge. Knowledge of leisure types directly addresses the need for research into the possibility of considering individuals' psychographic profile as a basis for market segmentation in recreation (13, p. 356). Particular leisure types might be found to prefer particular types, styles, or levels of participation in recreation activities. Facility design preferences and the subjective definition of beauty might be found to vary across the different leisure types. Such information would be invaluable to park and recreation planners. Perhaps more importantly, knowledge of leisure types would assist therapeutic recreation professionals in diagnosing and prescribing remedial strategies for individuals whose leisure functioning was found to be problematic (9). This latter benefit becomes even more important with the mandate of PL 94-142 for the assessment and remediation of individuals' leisure functioning as a part of handicapped students' Individualized Education Plans (IEP's) (28).
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CHAPTER II

REVIEW OF LITERATURE

Introduction

Numerous issues surround an investigation of a typology of leisure and an attempt to begin the development of a theory to account for people's functioning in leisure. Most of these issues are methodological. Instrumentation for the measurement of the components of freedom is required, along with measures of variables which may form developmental and peripheral factors within the theory. In addition, issues associated with cluster analysis, which is the statistical procedure commonly used in the development of typologies, warrant discussion. Finally, the study should be placed in the context of existing research and current thinking in the field of leisure studies; a review of classification efforts in leisure research is needed. This chapter, therefore, has been divided into four sections: (1) literature describing the instrumentation for the measurement of perceived freedom in leisure, (2) literature which describes measurement of potential developmental and peripheral factors within the theory, (3) literature which summarizes existing classification efforts in leisure
research, and, (4) literature which discusses the use of cluster analysis in developing typologies.

Literature Describing Instrumentation for the Measurement of Perceived Freedom in Leisure

The Leisure Diagnostic Battery (LDB) provides the only existing instrumentation involving the measurement of perceived freedom in leisure (33). A study designed to cluster profiles according to LDB results would, therefore, be a pioneering departure from existing approaches which have clustered people based on their activity interests or leisure behavior (19, 59, 16, 36, 54). In addition, the examination of the relationship between the identified "leisure types" and barriers to involvement in recreation activities would be useful in terms of the development of theory and in helping LDB users to more effectively diagnose problems based on LDB results.

The LDB was created in response to the mandate of PL 94-142 for assessment of leisure functioning as a part of exceptional students' Individualized Education Plans (IEP's) (57). Recognizing the shortcomings of existing activity-based and psychomotor approaches to assessment, the project staff adopted a view of leisure which focused on a state of mind (33, 43). This state of mind was considered to be typified by perceived freedom, or a sense of "freedom to" pursue leisure in free time and recreation activities (33). Five summative rating scales are utilized in
obtaining an "initial diagnosis" indicative of subjects' sense of "freedom to." These included the Perceived Leisure Competence Scale, the Perceived Leisure Control Scale, the Leisure Needs Scale, the Depth of Involvement in Leisure Scale, and the Playfulness Scale (33, 34). The sum across the five scales provides an indication of the individual's perceived freedom in leisure and the profiles of individual scale scores provide evidence of areas which may be problematic for particular individuals (34).

Two other instruments provide additional insight into the nature of identified deficiencies. These scales are intended to measure the extent to which individuals are "free from" particular personal and environmental barriers to perceived freedom. Scales included in this "assessment follow up" process (33) are the Barriers to Leisure Involvement Scale (13), and the Leisure Preferences Scale (1).

The LDB was made available for use in August of 1982. Since its release is so recent, no studies of the LDB have been completed other than those conducted in the process of its development. A paper describing analysis of data from several rounds of field testing was recently developed by Ellis and Witt (20). In that paper, the authors describe the development, reliability, and validity of the LDB.
In terms of reliability, the LDB fares very well. Based on a sample of 200 nine to fourteen year old public school students in Columbia, Missouri, the overall measure of perceived freedom produced an alpha coefficient of .95 and the component primary diagnosis scales all yielded reliability coefficients in excess of .82. The two follow up scales each produced alphas in excess of .80. Stability estimates were also within an acceptable range, with a test-retest correlation of .89 for the overall measure and coefficients ranging from .75 (Leisure Needs Scale) to .82 (Perceived Leisure Competence Scale) for five components of that overall measure (20).

Validation of the LDB involved the examination of convergent and discriminant validity (8). In other words, specific scales were expected to converge on certain concepts and to be independent of others. Specifically, LDB scales were intended to be unrelated to demographic variables and they were intended to be interrelated among themselves. Examination of the degree of discrimination between the LDB and demographic variables was accomplished by calculating product-moment correlation coefficients between LDB scales and various demographic variables. In several data sets generated in the development of the LDB, most of the obtained coefficients were not significantly different from zero. Across all data sets, no demographic
variable was found that shared more than 4 per cent of the variance with any of the LDB scales (20).

Factor Analysis was employed to examine the hypothesis that the five initial diagnosis scales converged on a perceived freedom concept and that the two follow up instruments converged on a "freedom from" concept. The principal axis method of factoring was employed, with coefficients of multiple determination as the initial communality estimates. Axes were rotated to final solution using Kaiser's varimax criterion (27). Two factors were identified. The first correlated significantly with the five initial diagnosis scales and the Barriers to Leisure Involvement Scale. The second factor was most closely described by the Leisure Needs Scale and the Depth of Involvement in Leisure Scale. It was concluded that, although the factor structure did not perfectly mirror the hypothesized structure, the factors made sense conceptually and provided evidence of validity. In addition, the need for further examination of the validity of the Knowledge of Leisure Opportunities Test was emphasized (20).

The LDB Project has produced several documents in addition to the instrumentation and User's Guide. A theoretical and empirical structure paper (20) describes data from several rounds of developmental testing. Another document delineates the entire LDB process, from assessment
and diagnosis through remediation (21). Finally, a paper has been produced which delineates the conceptual basis for each of the LDB component scales (33). A study of "leisure types" based on LDB results would provide valuable information to supplement the use of each of these documents.

Measures of Possible Developmental and Concrete Peripheral Characteristics

As noted earlier, a cluster analysis of people into homogeneous groups based on Leisure Diagnostic Battery score profiles would serve a theoretical function as well as a function which is immediately practical. The theoretical function would be the pioneering effort to develop a typology from a state of mind view of leisure (43). This typology would be based on five LDB initial diagnosis scales: the Perceived Leisure Competence Scale, the Perceived Leisure Control Scale, the Leisure Needs Scale, the Depth of Involvement in Leisure Scale, and the Playfulness Scale (33). Measures of potential developmental and peripheral characteristics would also be useful in interpreting the types and in developing the theory. In addition, if particular groups of personal and environmental barriers were found to be characteristic of particular leisure types, recreation therapists could much more effectively plan remedial efforts based on scale scores from the "initial diagnosis" phase of the LDB process (20).
The Barriers to Leisure Involvement Scale (13) and the "Active," "Group," and "Risk" subscales of the LDB Leisure Preferences Scale (1) provide relevant measure for conducting such an examination.

The Barriers to Leisure Involvement Scale consists of 24 items, measuring 10 different types of barriers. These barriers were derived from lists of barriers developed by Compton (11) and by Witt and Goodale (63). In his paper, Compton delineated ten categories of barriers: attitudinal, communicative, temporal, sociocultural, economic, health, experiential values and skills, and architectural. The list of barriers utilized by Witt and Goodale in their study of leisure enjoyment at different stages of the lifecycle was somewhat different. Their approach centered more closely around personal, perceptual kinds of barriers. These included the following: difficulties in making and carrying out decisions, lack of awareness of leisure services and resources, not being comfortable in social situations, lack of free time, and poor health.

In the development of the Barriers to Leisure Involvement Scale, these two lists were synthesized (13). The following list of barriers was obtained: social skills, decision making, time, financial constraints, lack of opportunities, lack of personal ability to participate, poor health, and accessibility. Items were written to correspond to each of these barrier areas. The resulting scale is a
Likert type, summative rating scale with three response categories for each item.

Some evidence exists indicating that particular "leisure types" may prefer particular styles of participation in recreation activities (19, 59, 16, 36, 54). These preferred styles could be described as concrete peripheral characteristics (38) in the overall theory of leisure functioning. The LDB includes three measures which make it possible to examine the relationship between leisure types and three dimensions of style of participation preferences. These measures are subscales of the LDB Leisure Preferences Scale (1). They involve the examination of the extent to which individuals prefer risk oriented activities as opposed to nonrisk oriented activities; active rather than passive activities, and group oriented rather than individual oriented activities (1). Alpha reliability coefficients of .67, .63, and .66, respectively, have been produced by these ten item, forced choice subscales (20, p. 45).

Studies Involving Classification in Recreation and Leisure Research

In their review of multivariate statistical methods in terms of problems of classification in psychiatry, Garside and Roth (25, p. 54) commented on the importance of distinguishing between classification of symptoms and classification of patients. Such a distinction also seems relevant to an examination of classification efforts in
recreation and leisure. Studies involving the classification of leisure related variables must be distinguished from studies which have involved the classification of people based on their score profiles across a set of variables. Studies involving the classification of variables are by far the most common. Three general types of studies may be considered within this category: (1) studies involving the clustering of activities, (2) studies which have involved the relationship between participation in leisure activities and various personality and self-perception variables, and, (3) studies which have involved the clustering of leisure related constructs independent of activities.

The first attempt to cluster recreation activities was Proctor's (50) study, which utilized Outdoor Recreation Review Commission data. That study involved a centroid factor analysis based on survey respondents' extent of participation in each of fifteen recreation activities. Four factors were identified: (1) passive pursuits, (2) water sports, (3) active pursuits, and, (4) backwoods activities.

More recently, Bishop (5) conducted a study which involved the factor analysis of correlation matrices from data from a survey of four Minnesota communities. In that study, data describing participation of adults in thirty-two leisure activities were collected by mailed questionnaire. The principal axis method of factoring was employed with squared multiple correlations as the initial estimates of
communality and using an orthogonal rotation of axes to final solution. Results were examined by comparing the stability of the factor structures across the four communities. Three factors were identified and considered stable: (1) active-diversionary, (2) potency, and, (3) status.

A companion to the Bishop study was conducted by Witt (62). In that study, Witt factor analyzed data from high school students in three of the communities involved in Bishop's study. As in Bishop's study, a principal axis factor analysis was employed, with squared multiple correlations in the main diagonal and an orthogonal rotation to final solution. Four factors were identified and were considered to be stable across the communities surveyed: (1) sports, (2) outdoor/nature, (3) sophisticate/aesthetic, and (4) active/diversionary. Results were discussed in terms of their similarities and differences relative to the Bishop study.

A third factor analysis of activities has been conducted by McKechnie (39). That study involved an adult sample of California residents who indicated the extent of their past involvement in each of 121 activities. Using a principal components analysis with a "highest r" (the largest correlation coefficient in each row of the matrix) used as the initial estimate of communality, McKechnie found seven factors: (1) mechanics, (2) crafts, (3) intellectual, (4) slow living, (5) neighborhood sports, (6) glamour sports,
and, (7) fast living. Results were discussed in terms of generalizability and in terms of subsequent research moving from a context of discovery to a context of confirmation. Specifically, McKechnie recommended that studies be conducted of the demographic and personality correlates of activity dimensions.

Although many other studies have been conducted involving factor analysis, cluster analysis, and multidimensional scaling of activities (52, 4, 29, 15, 26), McKechnie's recommendation for the examination of personality correlates must be considered a significant departure for those and the earlier efforts. Rather than concentrating on the dimensions of activities, the need became evident to determine how these dimensions covaried with characteristics of individuals. Several studies have been conducted involving an analysis of these relationships.

One study which was designed to examine the relationship between leisure activities and personality was conducted by Howard (30). In that study, 139 high school students completed a Personality Research Form, which was based on Murray's Need-Press Theory (44, pp. 445-452), and a Leisure Activity Questionnaire, which was a modified version of Witt's (62) instrument. The data were analyzed through canonical correlation, factor analysis, and multiple discriminant analysis. The canonical correlation analysis
identified two independent functions which were significant at the .01 level. Rather than bothering to interpret the functions, however, Howard factor analyzed the activity scores, assigned subjects to groups according to their highest factor score, and conducted a multiple discriminant analysis using the personality variables as predictors. Because Howard's varimax rotated factors were orthogonal, his analysis was totally inappropriate; a given individual could be high on each of the four factors. Obtained groups, therefore, were not homogeneous. Thus, although Howard's intentions were consistent with a needed direction for research, his contribution to the body of knowledge dealing with personality correlates of leisure was minimal.

A study which illustrates the relationship between personality and leisure behavior much more clearly was conducted by Allen (2). In that study, 212 undergraduate students completed the Personality Research Form E, which is based on Murray’s Need-Press Theory (44, pp. 445-452), and they indicated, on a five point scale, their degree of interest in each of fifty-one leisure activities. The activities were chosen from the studies by Bishop (5), Witt (62), McKechnie (39), and Howard (30). Data were analyzed through canonical correlation, with a structure matrix (35) created to clarify the relationships between each pair of significant canonical variates.
Four significant pairs of canonical variates were identified. Each of these suggested that particular personality traits were associated with particular patterns of activity preference. The first pair of canonical variates, for example, suggested a relationship between the needs for understanding (-.60), play (.51), harm avoidance (-.49), and dominance (-.36) and the activity variables sports (.60), cultural-intellectual (-.49), and outdoor-active (.43). Discussion involved the examination of the activity dimensions relative to those found by Witt (62), McKechnie (39), and Howard (30).

A third study involving the relationship between leisure behavior and an aspect of personality was conducted by Miller and Hudson (40). In that study, scores of college students on McKechnie's Leisure Activity Blank (LAB) were correlated with scores on the Tennessee Self Concept Scale. Significant relationships were found between the strength of interest on five subscales of the LAB (intellectual, glamour sports, slow living, sports, and crafts) and the Total Positive score on the Tennessee Self Concept Scale. In addition, canonical correlation analysis revealed two significant sets of canonical variates. Although the supporting data have not been published, the authors concluded that the most important finding of the study was that
individuals with similar self concepts tend to display the same type of leisure behavior.

Other attempts to correlate personality variables with leisure behavior have been reviewed by Iso-Ahola (31, pp. 206-208). Based on a review of Moss, Shackleford, and Stokes (42), Christensen and Yoesting (10), and Driver and Knopf (17), Iso-Ahola concluded that several problems were evident in attempts to relate personality variables to leisure behavior. These problems included the use of obscure and insufficiently validated instruments, the lack of universal operational definitions of commonly studied traits such as self esteem, the lack of a theoretical justification for studying traits independently of social and situational influences, and subject heterogeneity. These latter two criticisms, it should be noted, are suggestive of a need to identify homogeneous groups of individuals before proceeding to the examination of relationships among leisure related variables and personality variables.

A different line of research has involved the clustering of leisure related constructs. Perhaps the most relevant of these to this study is the factor analysis of LDB components which was described earlier (20, pp. 60-64). Related studies have involved the examination of leisure attitudes. The earliest of these was conducted by Neulinger and Briet (45). In that study, the researchers factor analyzed responses of 320 adults to a variety of attitude statements.
Seven factors were identified: (1) amount of work or vacation desired, (2) society's role in leisure planning, (3) self definition through work or leisure, (4) amount of perceived leisure, (5) autonomous versus passive leisure pursuits, (6) affinity to leisure, and, (7) importance of public approval. This pioneering study of leisure attitudes has subsequently and appropriately been criticized for its atheoretic operationalization of attitudes (31, pp. 269-270) and the subscales have been found to lack reliability (12).

A more recent classification of dimensions of leisure attitudes was a study by Ragheb and Beard (51). In that study, the researchers developed an attitude scale based on three dimensions of attitude: cognitive, affective, and behavioral. The instrument was administered to 1,042 adults. Principal axis factor analysis confirmed the researchers' three factor hypothesis. Alpha reliabilities revealed that the subscales were internally consistent and product-moment correlations among subscale scores confirmed the interrelationships among the three domains.

One problem with the numerous studies involving the clustering of activities is that the identified structures may vary according to the characteristics of subpopulations within the population of interest (3). A method of dealing with this problem is to cluster people into homogeneous groups and then compare the identified groups relative to
the variables of interest (53). While the research discussed above involved the clustering of leisure related variables, a second major type of research has involved the clustering of people and the examination of the identified clusters relative to the variables of interest.

The earliest of these studies was conducted by Tatham and Dornoff (59). That study involved a demonstration of the use of cluster analysis in developing market segments for outdoor recreation planners. The study involved the analysis of data from a separate study of heads of households in Alabama. The data set included ten demographic variables and participation rates in twenty different outdoor recreation pursuits. Using the cluster analysis procedure developed by Johnson (32), demographic characteristics were clustered into ten segments for each of twenty activities.

Results indicated that the frequency of participation in each of the twenty activities differed markedly across the clusters. The implication of this finding to recreation planners was that particular groups of people may be found, as defined by socioeconomic variables, who are particularly receptive to certain types of recreation services. Conclusions were discussed in terms of the usefulness of cluster analysis in outdoor recreation planning.
Another study involving cluster analysis was conducted by Romsa (54). That study was designed to demonstrate the application of the "Information Statistic 2DI" to cluster analysis problems related to outdoor recreation planning. The sample included 882 Quebec residents who has participated in a study conducted by the Canadian government in 1969. Data utilized in the study included information concerning respondents' participation/nonparticipation in twenty-six recreation activities, along with twenty-seven socioeconomic variables. The analytic procedure involved a three step process whereby the socioeconomic variables and the activity variables were clustered separately before being integrated in a third step.

Results suggested the existence of eight distinct activity packages, each of which differed in terms of specific socioeconomic characteristics, participation rates, and number of activities in which respondents participated. Conclusions were discussed in terms of the relationship of this study to other factor and cluster analyses of activities.

Ditton, Goodale, and Johnsen (16) also conducted a study which involved cluster analysis. In that study, the researchers attempted to identify typologies based on participation in water related recreation activities. Two samples of 250 each were drawn from a data base describing recreation patterns of 2,174 heads of households in
Wisconsin. The first sample of 250 was used to identify typologies based on participation patterns in eight water based activities and to identify typologies based on these activity frequencies and fifteen environmental variables. The second sample was used for validation purposes through replication. Data analysis involved the application of a hierarchical cluster analysis procedure developed by Wisehart (61).

Results of the cluster analysis of activities were discussed in terms of the distinctiveness and number of individuals associated with each cluster. Eight distinctive clusters were identified: infrequent participants, duck hunters, picnics, boaters, swimmers, water skiers, and sailors. Although fishing was found to be a highly popular activity, no cluster was distinguished by that variable. Clusters found to be the most distinctive were the water skiers, sailors, and infrequent participants.

The analysis of activities and environmental characteristics revealed nine leisure types. The distinctive dimensions of these clusters tended to be active/passive, type of activity, and the specific facility or body of water in which the participation usually occurred. This structure, as well as the structure identified in the analysis of activities, was closely approximated in the analysis of data from the replication sample.
Conclusions were discussed in terms of the usefulness of cluster analysis as a data reduction device and as a planning device. In addition, two major implications of the results were briefly discussed. These implications were that the study provided a better understanding of the "... spatial distribution of water based activities between contrasting environments" and an understanding of "... typologies based on the similarity of recreation experiences" (16, pp. 294-295).

Other attempts to identify homogeneous clusters of individuals have involved the application of factor analysis. In one of these, Duncan (19) submitted data from 1,628 Idaho residents to a series of Q factor analyses. Data included demographic variables and number of hours per week spent in each of twenty-one leisure activities. Five leisure types were identified, all but one of which centered around involvement in indoor activities.

In a different approach, London, Crandall, and Fitzgibbons (36) employed three mode factor analysis in the identification of particular activities which satisfied the same needs within different groups of people. The study was limited to 83 students of an introductory business administration course. Each student completed an instrument designed to measure students' interests in thirty-eight leisure activities, along with the extent to which each
activity was perceived to satisfy each of fifteen needs. Factor analysis within the activity and need dimensions approximated the results of previous studies, providing evidence of validity of the measurement. The three mode analysis, activities X needs X people, clearly demonstrated that individual differences exist in perceptions of leisure activities. Conclusions were discussed in terms of the limitations associated with the small, homogeneous sample.

Finally, Yu (64) applied principal components analysis to data involving participation of 644 adults in fifteen different leisure activities. Three principal components were identified and individuals were classified into seventeen groups according to the pattern (shape) of their factor scores. Subsequently, a stepwise multiple discriminant analysis was employed to examine the relationship between group membership and demographic variables. One discriminant function was found, involving age, education, and income. That function accounted for 33 per cent of the variance in group memberships.

Review of the collection of studies involving clustering of people and variables in recreation and leisure is suggestive of the value of clustering individuals into homogeneous groups rather than grouping variables across a heterogeneous population (53). In addition, the over representation of studies dealing with leisure from an activity definition of that concept is evident. Based on
this review, a study involving cluster analysis of individuals from a set of variables describing a state of mind view of that concept would make a useful contribution to the literature of the field. Data from the LDB makes such a study possible.

Methods of Cluster Analysis

In the previous section, studies involving different types of clustering were reviewed. Studies in which variables were clustered involved factor analyzing matrices of correlations among the variables. In most of these studies, principal axis factor analysis was used, along with a rotation of axes such that the identified factors were orthogonal. In light of the similarity of methods utilized to cluster variables, it is interesting to note that the studies involving the grouping of people each utilized a vastly different form of cluster analysis. Tatham and Dornoff (59) used Johnson's (32) hierarchical approach, which is based on Ward's (60) method. That approach seeks to cluster people on the basis of distance in Euclidean space. Romsa (54) employed a procedure based on the exotic "2DI" statistic. Ditton, Goodale, and Johnsen (16) employed a clustering algorithm which enabled the researchers to examine the resistance of clusters to fusion in a hierarchical cluster analysis. Duncan (19) and London, Crandall, and Fitzgibbons (36) used different
variations of factor analysis. Finally, Yu (64) developed clusters by simply categorizing individuals according to the patterns of their factor scores.

This diversity of approaches is not surprising, considering the extent of the debate over the approaches of the many different methods of clustering. Different methods of cluster analysis lead to very different results (53, 7, 58, 6, 25, 22, 23, 24, 46). In choosing a method of cluster analysis, therefore, a researcher must be familiar with the different types of cluster analysis and with the performance of those approaches in terms of finding "real" clusters rather than the ends of a single dimension (25, 6, 7).

Specifically, in addition to awareness of assumptions about the basic approaches to cluster analysis, researchers need to have knowledge of types of similarity matrices, the problem of determining the number of clusters, and the problem of validating the identified clusters.

Cluster analysis starts with a "similarity matrix," the elements of which indicate the degree of similarity between each pair of individuals (48). These elements, or "similarity indices" are of two basic types: vector product coefficients and distance function coefficients (48). Each of these may be computed by combining across corresponding elements of each pair of subjects' score profiles. Vector product indices include covariances, correlation coefficients, and raw cross products between
profiles. The use of each of these has associated shortcomings. Covariances have the obvious problem of different metrics as an artifact of the measurement. Q type correlation coefficients restrict the analysis to an examination of profile shape; the level and dispersion of each profile is removed (46, p. 442). Finally, cross product indices of similarity have the problem of variables being of different metrics and, unless they are double standardized (across variables and within profiles) they can have different values for different pairs of identical profiles (48, p. 188). As Haynes (28) has pointed out, cluster analysis of double standardized matrices must be interpreted differently than matrices in which standardization has been conducted across variables only.

Distance function indices are of two closely related types: (1) sums of squares of differences between corresponding scores in each pair of profiles and (2) sums of squared differences between profiles of scores which have been standardized to account for different metrics. Given P variables within N sets of score profiles, these indices locate N people in P dimensional Euclidean space and enable the examination of distances within and between clusters of people. This measure of distance takes into account shape, elevation, and dispersion of profiles and is, therefore, generally the most preferred index of similarity (48, p. 185; 46, p. 444).
Cluster analysis, therefore, operates on an N x N matrix of similarity indices and attempts to identify homogeneous groups based on some particular criterion. Many different criteria are utilized across the various cluster analysis algorithms. Ward's (60) method attempts to minimize the squared deviations about the group mean of each attribute within each cluster. In Sokal and Sneath's (56) average linkage cluster analysis, a cluster is defined as a group "... in which each member has a greater mean similarity with all other members of the same cluster than it does with all members of any other cluster (6, p. 379)." Johnson's (32) method is concerned with the distance between closest elements of each cluster. Orloci's (47) method is based on information theory and joins objects in a manner such that minimal "mutual information" is obtained (53). Nunnally (46, p. 444) recommends the factor analysis of the matrix of Euclidean distance indices, with a rotation of axes to final solution using the method which is most consistent with the researcher's hypotheses and needs.

In addition to the criteria which different methods seek to achieve, different approaches are utilized in obtaining clusters. In hierarchical cluster analysis (60, 56, 32), the starting point is a situation in which each object or person is considered to be a separate "cluster." Successive steps identify larger groups of individuals based on some criterion, as discussed earlier. The terminal
point is a situation where all objects are grouped into a single cluster. In non-hierarchical cluster analysis, the researcher must decide on the number of clusters before the computation is carried out (53, p. 149). Thus, non-hierarchical assumes an a priori hypothesis concerning the nature of each cluster. Hierarchical approaches are preferred because they enable the researcher to inspect the emergence and resistance to fusion of different clusters (53, p. 149) and they may enable the researcher to identify important subgroups within even well known categories (28, p. 114). Finally, raw score factor analysis of Euclidean distance indices involves the identification of a smaller number of "types" from a large number of individuals. Any of the widely known methods of factor analysis may be employed (46, p. 447).

One of the main issues associated with cluster analysis is the problem of identifying the best or correct number of clusters. As Garside and Roth (25, p. 55) pointed out in their review of classification in psychiatry, "... the problem of deciding the 'best' number of groups into which to partition a set of data must be considered unsolved." Similarly, Everitt (22) reviewed problems of cluster analysis and concluded that none of the methods proposed for identifying the best number of clusters were adequate. Recently, however, the Statistical Analysis
System (SAS) Institute proposed a cubic clustering criterion (CCC) which is a promising new approach to the number of clusters problem, particularly with large samples (55, p. 420). The CCC is based on the assumption that "... a uniform distribution on a hyperrectangle will be divided into clusters shaped roughly like hypercubes" (55, p. 420). In practice, the CCC is plotted against the number of clusters. Peaks on the plot with 2 or 3 as the value of the CCC indicate good clusterings (55, p. 420).

A second problem with cluster analysis is the validation of the identified clusters (24, 58, 25). Although quantitative approaches may yield any number of clusters, no guarantee exists that these are not simply artifacts of the method. Extremes of a single dimension may often appear as distinct clusters (9, 24, 25, 58). It is essential, therefore, to validate the clusters.

Perhaps the most highly recommended method of validating clusters is the approach recommended by Everitt (22). That method was successfully employed by Prewitt (49) in his study involving categorization of undiagnosed psychiatric patients. It has been endorsed and extended by Chignall and Stacey (9, p. 752). The procedure involves five steps: (1) the sample is split into two subsets of cases, (2) a cluster analysis is conducted on one of the samples, (3) each case from a second sample is classified
into one of the clusters using k nearest neighbor discriminant analysis, which is a non parametric approach to discriminant analysis (55, p. 397; 18, p. 103), (4) with all cases categorized, a discriminant function analysis is conducted, using the "normal" tests of significance (9, p. 152), and, (5) steps 1 through 4 are repeated using a different clustering procedure. Validity is evident in the significance of differences between clusters within each method and in the per cent of variance explained by the different approaches (9, p. 152).

A third problem with the use of cluster analysis is the problem of selecting a procedure from the "... many, many methods of forming clusters" (6, p. 377). In recreation and leisure research, Romesburg (53, p. 152-153) has recommended three criteria: (1) select a method which has been validated by application to situations in which real categories are known, (2) select an approach which is widely known or easily learned, and, (3) select an approach which agrees with the researchers' intuition.

Romesburg's (53) recommendations, it should be noted, advise users to choose a method based on their judgement and intuition. Only a few empirical studies have been conducted to facilitate users' abilities to choose an appropriate approach. In one such study, Blashfield (6) compared the performance of four methods of cluster
analysis across fifty data sets. In conclusion, the author stated that Ward's (60) minimum variance method "... appears to be clearly preferable if the user wishes to generate a classification" (53, p. 386).

In another approach, Blashfield and Morey (7) employed Monte Carlo procedures to compare the performance of Lorr's clumping method (37), inverse factor analysis, average linkage (56), and Ward's (60) method. In that study, results indicated a trade-off between coverage and misclassification rates. Lorr's clumping method and inverse factor analysis classified 84 per cent of the cases and misclassified 5 and 13 per cent of the cases respectively. The average linkage method and Ward's method, on the other hand, classified all cases but each misclassified roughly 15 per cent of the cases. It was concluded that the data provided strong evidence of validity for each of these techniques. These results were consistent with results of other studies (e.g., 41), which have indicated that Ward's method and Sokal and Sneath's (56) average linkage method are "among the best" hierarchical clustering algorithms (55, p. 424).

The numerous discussions of cluster analysis reviewed and/or alluded to in this section reveal that the technique has a controversial history. Many methods exist and numerous factors must be considered in choosing from among
the alternatives. With knowledge of the characteristics of major alternatives and of methods of validation, however, existing evidence is consistent with Garside and Roth's (25, p. 56) conclusion that classification efforts in research "... should make increased use of cluster analysis."

Summary

This chapter was divided into four sections. The first section summarized literature which describes the Leisure Diagnostic Battery and included a discussion of the reliability and validity of the scales within the Battery. It was concluded that a study involving the identification of homogeneous clusters of individuals would be valuable in terms of theory development and in terms of helping users to successfully implement the LDB assessment, diagnosis, and remediation processes.

The second section of this chapter involved a discussion of the "assessment follow up" scales of the LDB. These scales are intended to provide users with an indication of the extent to which certain personal and environmental barriers preclude individuals' perceived freedom in leisure. These "barriers" may describe important components within the overall theory of leisure functioning. Two scales are included. The Barriers to Leisure Involvement Scale was based on a synthesis of barriers proposed by
Compton (1980) and by Witt and Goodale (1982). It includes items representative of eight types of barriers. A ninth type of barrier, lack of awareness of leisure opportunities is measured by the Knowledge of Leisure Opportunities Test. Information which would be valuable in the LDB remediation process would be the relationship between the identified "leisure types" and these dimensions of barriers to leisure involvement.

The third section was devoted to a discussion of classification studies in recreation and leisure. Two types of studies were reviewed: those which have involved the clustering of variables and those which have involved the clustering of people. The need for a study involving classification from a state of mind view of leisure was evident from the over representation of studies involving clustering from an activity view of leisure.

Finally, the fourth section of this chapter involved a discussion of some of the many approaches and issues associated with using cluster analysis to cluster people into homogeneous groups. Issues dealt with included the search for the "best" method, the selection of an appropriate index of similarity, the problem of determining the number of clusters to consider, and the problem and process of validating the identified clusters. From this discussion, it was concluded that cluster analysis can be a valuable
approach to classification when informed decisions are made in its use and interpretation.
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CHAPTER III

PROCEDURES

Introduction

This chapter delineates the procedures which were followed in conducting this investigation. It is divided into four sections. The first section describes the sample which was used in the study, the second section details the procedures which were used in the analysis of data, the third section describes the software used in the analysis of data and the fourth section summarizes the means by which the results were used to contribute to development of theory.

The Sample

The data used in this investigation were generated in the last round of testing in the developmental process of the Leisure Diagnostic Battery (LDB). Included were complete LDB profiles from 200 twelve to fifteen year old students from a public school in Columbia, Missouri. The data were collected during the spring of 1982 from students in study halls at one of Columbia's two junior high schools. Administration procedures followed those suggested in the LDB User's Guide (17). The school serves
a predominantly white, middle income population in Columbia (14). The mean age of the sample was 13.7, with 52 per cent being male.

Columbia is a city of 65,000 people located in central Missouri. Major industries of the community include insurance and medical services (6). In addition, three higher education institutions are located within the city: the University of Missouri-Columbia, Columbia College, and Stephens College.

These data were used for the examination of the convergent and discriminant validity of the LDB (9, pp. 57-63). Distributions of scores from that set of data are presented in the LDB User's Guide to provide users with one possible method of referencing scores of their clientele. In terms of correlations among themselves and correlations with demographic variables, these scores were very similar to those obtained from samples from different parts of the country in earlier developmental versions of the LDB (9).

Analysis of Data

Analysis of data involved the application of techniques to identify homogeneous clusters of individuals, to validate those clusters, and to determine the relationship between the identified clusters and other variables, such as environmental barriers to leisure (7). The process utilized to identify and validate clusters was recommended
by Everitt (12) and extended by Chignall and Stacey (5, p. 752). It is summarized in Chapter II. Five steps were involved in the identification and validation of clusters.

First, with the use of a table of random numbers, the sample was split into two subsamples. One of these subsamples included 150 cases and the other included 50 cases. That breakdown of cases enabled the initial identification of clusters to be based on a relatively large sample size. Next (Step 2) Ward’s (27) hierarchical clustering procedure was applied to a standardized data matrix of the N=150 sample. That matrix included profiles of scores across the five LDB component measures of perceived freedom: the Perceived Leisure Competence Scale, the Perceived Leisure Control Scale, the Leisure Needs Scale, the Depth of Involvement in Leisure Experiences Scale, and the Playfulness Scale (16).

Ward’s (27) method of cluster analysis involves the clustering of cases based on the criterion of minimizing the within groups (error) sum of squares. Following Ward’s example (27, pp. 241-243) the number of clusters to be considered was reflected in the "acceleration of error" (27, p. 243) as increasing numbers of groups were joined. That is, the step in the hierarchical procedure in which a substantial change in the error sum of squares occurred was indicative of the number of groups to be considered.
In the case of these data, changes in the error sum of squares suggested that a substantial amount of information was lost in considering five groups rather than six. Subsequent analyses, therefore, involved consideration of the sample as being composed of six homogeneous groups, or "leisure types."

The third step involved the assignment of the unclassified cases (N=50) to groups using k nearest neighbor discriminant analysis. Nearest neighbor discriminant analysis is a procedure which can be used to classify observations in situations in which the discriminating variables do not have multivariate normal distributions. It involves the assignment of individuals to groups based on distances in Euclidean space (24, p. 307).

With all cases categorized, a multiple discriminant analysis was conducted with group differences tested at the .01 level using the chi square distribution (Step 4). The strength of the relationship between group membership and the five variables was examined in terms of the canonical correlation and the value of Wilk's lambda. Canonical variables extracted by the procedure were also tested for significance at the .01 level using the chi square distribution.

In order to validate the identified clusters (5), steps two through four were repeated using k-means cluster
analysis (Step 5). That procedure classifies individuals on the basis of distances between cluster centroids and the mean across all variables in the profile of scores of each case. Thus, at the completion of the analysis, each case "... belongs to the cluster whose center is closest to the case" (11, p. 464). The relationship between clusters identified by the two methods was examined through uncertainty reduction analysis (22). Evidence of validity was found in this relationship, in the significance of group differences, and in the value of Wilk's lambda across the two analyses. Because a slightly smaller value of lambda was associated with the k-means procedure, groups associated with that method were used in subsequent analyses. It should be noted, however, that the difference in lambda across the two analyses was very small (.01) and that the two approaches produced very similar results.

After homogeneous clusters were identified and validated through comparisons of results across the two techniques (5), the relationship between those clusters and other leisure related variables (16) was examined. This step in the analysis was intended to facilitate interpretation of the groups and to suggest some possible developmental and peripheral characteristics (20) in the overall theory of leisure functioning. This investigation began with a stepwise multiple discriminant analysis, using items from the "Barriers to Leisure Involvement Scale."
Two discriminant functions were significant at the .01 level. A structure matrix (18, pp. 19-20) of correlations between the functions and the original variables was constructed to facilitate interpretation of the functions. Pairwise differences on each function were examined through Tukey's Honestly Significant Difference test (15, pp. 88-90). An adjustment for unequal group sizes was made through a procedure described by Kirk (15, p. 90). The .01 level was chosen for all significance tests to minimize problems associated with the accumulation of error.

Three one way analysis of variance tests were also conducted to examine group differences on three subscales of the LDB Preferences Inventory (1, pp. 86-94). These subscales included measures for strength of preference for active, group, and risk oriented activities. Multiple comparisons were conducted using Tukey's Honestly Significant Difference test, with an adjustment for nonequal group sizes also made using the procedure described by Kirk (15, p. 90). All differences were tested for significance at the .01 level.

Software Utilized

A variety of computer programs were used in the analysis of data. A BASIC program was written to produce a table of random numbers for the selection of the subsample. A Fortran program written by Veldman (26, p. 314) was used
for the Ward's hierarchical grouping procedure. BMDP subprogram PKM (11, p. 464) provided the clustering algorithm for the k-means procedure. The SAS NEIGHBOR (24, p. 397) procedure provided the program for classification of the fifty ungrouped cases in each analysis. All other statistical analyses involved SPSS (21) subprograms. Stepwise discriminant analyses were conducted using subprogram DISCRIMINANT, analysis of variance procedures were accomplished through the use of subprogram ONEWAY, and uncertainty coefficients were calculated by the subprogram CROSSTABS.

Interpretation of Results

The problem with which this investigation was concerned involved the development of theory to account for the functioning of people in leisure. Following the statistical analysis, therefore, the leisure types suggested by the data were evaluated in terms of existing knowledge of factors which may influence variables measured by the individual LDB components. Questions for future research were stated based on this interpretation. These questions, along with the interpretation of the groups, is presented in Chapter V.

A major source for this step in the investigation was the Leisure Diagnostic Battery Remediation Guide (9). That document was based on an extensive review of literature on attribution theory, play theory, and the social psychology
of leisure. In addition to this document, Lieberman's (19) work on playfulness was reviewed, along with the works of several leisure researchers who have investigated the influence of play environments and "tutors," such as parents, teachers, and play leaders on children's functioning in leisure (2, 3, 4, 10, 13, 23, 25).


CHAPTER IV

RESULTS OF DATA ANALYSIS

Introduction

The analysis of data in this investigation consisted of a two part process. The first part was associated with Hypothesis 1. Its purpose was to examine homogeneous clusters of people which were suggested by the data and to validate the clusters through the method proposed by Chignall and Stacey (1). The second part was associated with hypotheses 2 and 3. It involved the examination of the relationship between cluster membership and related measures of leisure functioning (5). The discussion within this chapter, therefore, is organized into those two parts.

Examination and Validation of Clusters

Chignall and Stacey's (1) method of identifying and validating homogeneous groups of people through cluster analysis involves five steps: (1) split the sample into two subsamples, (2) conduct a cluster analysis on one of the subsamples, (3) assign the remaining cases to groups using the K nearest neighbor rule, (4) conduct a discriminant analysis to determine the distinctiveness of the groups, and (5) repeat steps 1 through 5 using a second method of cluster analysis. This approach is designed to compensate
for the instability of results across different methods of cluster analysis when subgroups are not distinctive (1).
It also enables the investigator to use "the normal tests of significance" (1, p. 152) in examining the extent to which the variables discriminate between the groups.

Analysis Associated with Ward's Method

Following the selection of a subsample of 150 subjects, Ward's (11) hierarchical grouping procedure was applied to profiles of standardized scores on the Perceived Leisure Competence Scale, the Perceived Leisure Control Scale, the Leisure Needs Scale, the Depth of Involvement in Leisure Scale, and the Playfulness Scale. The change in error associated with each of the last twenty steps is presented in Table I. No change in error prior to the twentieth step exceeded .5 units. As Table I indicates, the value of the error term, or "objective function," increased at a rate of under 3 units for each synthesis of groups, until six groups were reduced to five. At that point, the objective function increased 5.7 units. Thereafter, the average change of the objective function was 13.81. Six groups, therefore, were retained for further examination. The number of subjects within each of these was as follows: Group 1, N=44; Group 2, N=44; Group 3, N=11; Group 4, N=15; Group 5, N=16; and, Group 6, N=20.
TABLE I
CHANGE IN ERROR ASSOCIATED WITH THE LAST 20 STEPS OF WARD'S HIERARCHICAL CLUSTER ANALYSIS

<table>
<thead>
<tr>
<th>Step</th>
<th>N of Groups</th>
<th>Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>130</td>
<td>21</td>
<td>4.00</td>
</tr>
<tr>
<td>131</td>
<td>20</td>
<td>4.05</td>
</tr>
<tr>
<td>132</td>
<td>19</td>
<td>4.65</td>
</tr>
<tr>
<td>133</td>
<td>18</td>
<td>4.70</td>
</tr>
<tr>
<td>134</td>
<td>17</td>
<td>5.27</td>
</tr>
<tr>
<td>135</td>
<td>16</td>
<td>6.26</td>
</tr>
<tr>
<td>136</td>
<td>15</td>
<td>6.43</td>
</tr>
<tr>
<td>137</td>
<td>14</td>
<td>6.83</td>
</tr>
<tr>
<td>138</td>
<td>13</td>
<td>8.61</td>
</tr>
<tr>
<td>139</td>
<td>12</td>
<td>9.62</td>
</tr>
<tr>
<td>140</td>
<td>11</td>
<td>11.39</td>
</tr>
<tr>
<td>141</td>
<td>10</td>
<td>12.71</td>
</tr>
<tr>
<td>142</td>
<td>9</td>
<td>14.21</td>
</tr>
<tr>
<td>143</td>
<td>8</td>
<td>16.64</td>
</tr>
<tr>
<td>144</td>
<td>7</td>
<td>19.56</td>
</tr>
<tr>
<td>145</td>
<td>6</td>
<td>21.23</td>
</tr>
<tr>
<td>146</td>
<td>5</td>
<td>26.94</td>
</tr>
<tr>
<td>147</td>
<td>4</td>
<td>40.23</td>
</tr>
<tr>
<td>148</td>
<td>3</td>
<td>44.71</td>
</tr>
<tr>
<td>149</td>
<td>2</td>
<td>68.37</td>
</tr>
</tbody>
</table>
The next step was the assignment of each of the remaining fifty cases to one of the six groups using the nearest neighbor rule. That procedure involves the assignment of individuals to groups based on distance in Euclidean space (10, p. 307; 2, p. 397). Seventeen subjects were assigned to Group 1 by the procedure, 22 subjects were assigned to Group 2, no subjects were assigned to Group 3, 3 subjects were assigned to Group 4, and 4 subjects each were assigned to Groups 5 and 6. After this step, each group included the following number of subjects: Group 1, 61; Group 2, 66; Group 3, 11; Group 4, 18; Group 5, 20; and Group 6, 24.

Following the assignment of the fifty unclassified cases to groups according to the nearest neighbor rule, a stepwise discriminant analysis was conducted to determine the extent to which the original variables discriminated among the six groups. The criterion to be optimized was minimizing the value of Wilk's lambda. Results are summarized in Tables II, III, and IV.

Table II presents a summary table of the stepwise procedure and matrix of pairwise F ratios which were used to test the significance of differences between each pair of groups after the final discriminating variable had entered the analysis. As that table reveals, the value of Wilk's lambda after step 5 was .052 (p<.0001) and all
TABLE II
SUMMARY OF STEPWISE DISCRIMINANT ANALYSIS
AND PAIRWISE F RATIOS ASSOCIATED WITH
CLUSTERS FROM WARD'S METHOD

Summary Table

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable Entered</th>
<th>Wilk's Lambda</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Perceived Leisure Competence</td>
<td>.302</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>2</td>
<td>Leisure Needs</td>
<td>.12</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>3</td>
<td>Playfulness</td>
<td>.070</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>4</td>
<td>Perceived Leisure Control</td>
<td>.058</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>5</td>
<td>Depth of Involvement</td>
<td>.052</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

Pairwise F Ratios*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Group 1</td>
<td>......</td>
<td>......</td>
<td>......</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>2. Group 2</td>
<td>42.63</td>
<td>......</td>
<td>......</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>3. Group 3</td>
<td>38.58</td>
<td>18.70</td>
<td>......</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>4. Group 4</td>
<td>72.48</td>
<td>27.86</td>
<td>13.31</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>5. Group 5</td>
<td>114.51</td>
<td>44.75</td>
<td>20.62</td>
<td>30.34</td>
<td>......</td>
</tr>
<tr>
<td>6. Group 6</td>
<td>25.41</td>
<td>87.56</td>
<td>75.37</td>
<td>112.44</td>
<td>163.26</td>
</tr>
</tbody>
</table>

*All pairs are significantly different at p<.0001.

pairs of groups were significantly different at p<.0001.

The five variables seemed to discriminate very well between the groups.

Evidence of the nature of the discrimination is provided in Tables III and IV. Table III shows that four canonical variables were needed to explain all the
# TABLE III

SUMMARY OF CANONICAL VARIABLES ASSOCIATED WITH GROUPS SUGGESTED BY WARD'S METHOD OF CLUSTER ANALYSIS

<table>
<thead>
<tr>
<th>Canonical Variable</th>
<th>Eigenvalue</th>
<th>Per cent of Variance</th>
<th>Cumulative Per cent</th>
<th>Canonical Correlation</th>
<th>After Variable</th>
<th>Wilk's Lambda</th>
<th>Chi Square</th>
<th>D.F.</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6.355</td>
<td>83.88</td>
<td>83.88</td>
<td>.930</td>
<td>0</td>
<td>.052</td>
<td>573.74</td>
<td>25</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>2</td>
<td>.738</td>
<td>9.74</td>
<td>93.62</td>
<td>.652</td>
<td>1</td>
<td>.379</td>
<td>187.62</td>
<td>16</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>3</td>
<td>.402</td>
<td>5.30</td>
<td>98.92</td>
<td>.535</td>
<td>2</td>
<td>.659</td>
<td>80.67</td>
<td>9</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>4</td>
<td>.069</td>
<td>.91</td>
<td>99.83</td>
<td>.254</td>
<td>3</td>
<td>.924</td>
<td>15.35</td>
<td>4</td>
<td>&lt;.004</td>
</tr>
<tr>
<td>5</td>
<td>.013</td>
<td>.17</td>
<td>100.00</td>
<td>.111</td>
<td>4</td>
<td>.988</td>
<td>2.41</td>
<td>1</td>
<td>&lt;.121</td>
</tr>
</tbody>
</table>
significant variation in group membership. The canonical correlation between the first canonical variable and group membership was .93. The next three were .65, .54, and .25. Finally, Table 4 presents a rotated structure matrix (6, p. 19) of correlations between each canonical variable and each of the original variables. Those correlations, which are very high, suggest a degree of independence of the five variables in discriminating among the groups.

### TABLE IV

**ROTATED STRUCTURE MATRIX FROM DISCRIMINANT ANALYSIS ASSOCIATED WITH GROUPS SUGGESTED BY WARD'S METHOD OF CLUSTER ANALYSIS**

<table>
<thead>
<tr>
<th>Original Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leisure Needs</td>
<td>.980</td>
<td>-.031</td>
<td>.182</td>
<td>-.068</td>
<td>-.032</td>
</tr>
<tr>
<td>Playfulness</td>
<td>-.030</td>
<td>.991</td>
<td>.012</td>
<td>.000</td>
<td>.131</td>
</tr>
<tr>
<td>Perceived Leisure</td>
<td>.181</td>
<td>.015</td>
<td>.982</td>
<td>.052</td>
<td>-.025</td>
</tr>
<tr>
<td>Competence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived Leisure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>-.064</td>
<td>.000</td>
<td>.050</td>
<td>.997</td>
<td>.010</td>
</tr>
<tr>
<td>Depth of Involvement</td>
<td>-.031</td>
<td>.131</td>
<td>-.024</td>
<td>.010</td>
<td>.991</td>
</tr>
</tbody>
</table>

**Analysis Associated with the K-Means Method**

K-means cluster analysis (3, pp. 464-473) was used in step five of Chignall and Stacey's (1) validation process. That procedure was applied to the same set of 150 score profiles used in the analysis with Ward's (11) method.
Like many approaches to cluster analysis, the k-means procedure has no method for determining the number of groups to consider (9, p. 149). Based on the results of Ward's method, therefore, six groups were considered. Numbers of subjects assigned to each group were as follows: Group 1, 26 cases; Group 2, 26 cases; Group 3, 30 cases; Group 4, 18 cases; Group 5, 21 cases, and Group 6, 29 cases.

The next step was the assignment of the fifty unclassified cases using the nearest neighbor rule. Using this procedure, 4 cases were assigned to Groups 1 and 2, 14 cases were assigned to Groups 3 and 5, 3 cases were assigned to Group 4, and 11 cases were assigned to Group 6. As a result of this classification, the total number of cases per group was as follows: Group 1, N=30; Group 2, N=30; Group 3, N=44; Group 4, N=21; Group 5, N=35; and, Group 6, N=40.

Next, a stepwise multiple discriminant analysis was conducted to examine the discrimination of the five variables among the six groups. As with the previous analysis, the criterion utilized was minimizing the value of Wilk's lambda. A summary table and a matrix of pairwise F ratios is presented in Table V. As that table reveals, a very high degree of discrimination was present. Each of the pairwise F ratios was significant at p<.0001 and the value of
TABLE V
SUMMARY OF STEPWISE DISCRIMINANT ANALYSIS
AND PAIRWISE F RATIOS ASSOCIATED WITH
GROUPS SUGGESTED BY THE K-MEANS
CLUSTER ANALYSIS

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable Entered</th>
<th>Wilk's Lambda</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Leisure Needs</td>
<td>.241</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>2</td>
<td>Perceived Leisure Control</td>
<td>.115</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>3</td>
<td>Playfulness</td>
<td>.070</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>4</td>
<td>Perceived Leisure Competence</td>
<td>.051</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>5</td>
<td>Depth of Involvement</td>
<td>.041</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

Pairwise F Ratios*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Group 1</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>2. Group 2</td>
<td>132.81</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>3. Group 3</td>
<td>123.02</td>
<td>30.02</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>4. Group 4</td>
<td>212.03</td>
<td>38.99</td>
<td>38.19</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>5. Group 5</td>
<td>38.63</td>
<td>36.9</td>
<td>34.02</td>
<td>96.46</td>
<td>..</td>
</tr>
<tr>
<td>6. Group 6</td>
<td>31.23</td>
<td>73.43</td>
<td>46.97</td>
<td>120.91</td>
<td>18.05</td>
</tr>
</tbody>
</table>

*All pairs are significantly different at p < .0001.

Wilk's lambda after the fifth variable had entered the analysis was very small (.041, p < .0001).

The nature of the canonical variables was also examined. As Table VI reveals, four canonical variables were required to explain all the significant variation. The canonical correlation between the first of these and group membership was .94. Canonical correlations associated with
### TABLE VI

**SUMMARY OF CANONICAL VARIABLES ASSOCIATED WITH GROUPS SUGGESTED BY THE K-MEANS CLUSTER ANALYSIS**

<table>
<thead>
<tr>
<th>Canonical Variable</th>
<th>Eigenvalue</th>
<th>Per cent of Variance</th>
<th>Cumulative Per cent</th>
<th>Canonical Correlation</th>
<th>After Variable</th>
<th>Wilk's Lambda</th>
<th>Chi Square</th>
<th>D.P.</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.474</td>
<td>84.05</td>
<td>84.05</td>
<td>.939</td>
<td>0</td>
<td>.041</td>
<td>618.8</td>
<td>25</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>2</td>
<td>1.031</td>
<td>11.59</td>
<td>95.65</td>
<td>.712</td>
<td>1</td>
<td>.346</td>
<td>205.3</td>
<td>16</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>3</td>
<td>.251</td>
<td>2.82</td>
<td>98.47</td>
<td>.448</td>
<td>2</td>
<td>.703</td>
<td>68.2</td>
<td>9</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>4</td>
<td>.127</td>
<td>1.43</td>
<td>99.90</td>
<td>.335</td>
<td>3</td>
<td>.879</td>
<td>24.89</td>
<td>4</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>5</td>
<td>.009</td>
<td>.10</td>
<td>100.00</td>
<td>.096</td>
<td>4</td>
<td>.991</td>
<td>1.80</td>
<td>1</td>
<td>&lt;.180</td>
</tr>
</tbody>
</table>
the next three canonical variables were .71, .44, and .33, respectively. The rotated structure matrix (3) was also very similar to the one associated with Ward's method, as Table VII shows. Each variable seems to have an independent contribution to the discrimination among the groups.

**TABLE VII**

**ROTATED STRUCTURE MATRIX FROM DISCRIMINANT ANALYSIS ASSOCIATED WITH GROUPS SUGGESTED BY THE K-MEANS CLUSTER ANALYSIS**

<table>
<thead>
<tr>
<th>Original Variables</th>
<th>Canonical Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Leisure Needs</td>
<td></td>
</tr>
<tr>
<td>Perceived Leisure</td>
<td>.992</td>
</tr>
<tr>
<td>Control</td>
<td>.020</td>
</tr>
<tr>
<td>Playfulness</td>
<td>-.025</td>
</tr>
<tr>
<td>Perceived Leisure</td>
<td></td>
</tr>
<tr>
<td>Competence</td>
<td>-.049</td>
</tr>
<tr>
<td>Depth of Involvement</td>
<td>.107</td>
</tr>
</tbody>
</table>

**Comparison of the Results of the Two Methods**

Evidence of the validity of the clusters was provided by the considerable degree of discrimination associated with the five variables. Wilk's lambda was very small in both analyses and lambda and pairwise differences between all groups were highly significant. In addition, the structure matrices across the two analyses were virtually
identical. The variables seemed to each make an independent contribution to the discrimination among the groups.

Further comparisons of the results of the two methods provided additional evidence of validity. In order to examine the extent to which individuals who were grouped together by Ward's method were also grouped together by the k-means method, the classifications of the two methods were cross tabulated and an uncertainty coefficient was calculated (8, p. 33). The results are presented in Table VIII.

As that table reveals, a high degree of similarity was present. All twenty-four individuals who were classified into Group 6 by Ward's method were placed in Group 1 by the k-means method. Eighty-four per cent of the cases placed in Group 3 of the k-means procedure were classified into Group 2 by Ward's procedure. Ninety-eight per cent of the individuals placed in Group 6 by the k-means procedure were also members of Group 1 from Ward's method. The symmetric uncertainty coefficient of .60 summarized the relationship and was suggestive of a substantial degree of agreement across the two methods (8, p. 33).

A second method of comparing the results was to plot the profiles of means of the most similar groups. This
### TABLE VIII

CROSSTABULATION OF RESULTS OF THE TWO METHODS OF CLUSTER ANALYSIS

<table>
<thead>
<tr>
<th>Count</th>
<th>Row Pct</th>
<th>Col Pct</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
<th>Group 5</th>
<th>Group 6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>6.8</td>
<td>1.6</td>
<td>0.0</td>
<td>0.0</td>
<td>15.0</td>
<td>39.0</td>
</tr>
<tr>
<td>Group 1</td>
<td>9.8</td>
<td>3.3</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>24.6</td>
<td>63.9</td>
<td>61.0</td>
</tr>
<tr>
<td></td>
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<td>7.5</td>
<td>19.5</td>
<td></td>
</tr>
<tr>
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<td>0.0</td>
<td>8.0</td>
<td>37.0</td>
<td>0.0</td>
<td>0.0</td>
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</tr>
<tr>
<td>Group 2</td>
<td>0.0</td>
<td>12.1</td>
<td>56.1</td>
<td>0.0</td>
<td>30.3</td>
<td>1.5</td>
<td></td>
<td>66.0</td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>26.7</td>
<td>84.1</td>
<td>0.0</td>
<td>57.1</td>
<td>2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>4.0</td>
<td>18.5</td>
<td>0.0</td>
<td>10.0</td>
<td></td>
<td>.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>6.0</td>
<td>1.0</td>
<td>4.0</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 3</td>
<td>0.0</td>
<td>54.5</td>
<td>9.1</td>
<td>36.4</td>
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<td>0.0</td>
<td>0.0</td>
<td>11.0</td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>20.0</td>
<td>2.3</td>
<td>19.0</td>
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<td>0.0</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>3.0</td>
<td>1.5</td>
<td>2.0</td>
<td>0.0</td>
<td>0.0</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>15.0</td>
<td>0.0</td>
<td>3.0</td>
<td>0.0</td>
<td>0.0</td>
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<td></td>
</tr>
<tr>
<td>Group 4</td>
<td>0.0</td>
<td>83.3</td>
<td>0.0</td>
<td>16.7</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>18.0</td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>50.0</td>
<td>0.0</td>
<td>14.3</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>7.5</td>
<td>0.0</td>
<td>1.5</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>0.0</td>
<td>6.0</td>
<td>14.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Group 5</td>
<td>0.0</td>
<td>0.0</td>
<td>30.0</td>
<td>70.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>0.0</td>
<td>13.6</td>
<td>66.7</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>0.0</td>
<td>3.0</td>
<td>7.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24.0</td>
<td>0.0</td>
<td>0.0</td>
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<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>24.0</td>
</tr>
<tr>
<td>Group 6</td>
<td>100.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td></td>
<td>80.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td></td>
<td>12.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Symmetric uncertainty coefficient=.60
plot was constructed by considering each group associated with the k-means method and finding the group from Ward's method into which the greatest number of those subjects were categorized. Similarity, therefore, was considered in terms of the number of shared members across the two methods. Categorization was based on the k-means groups because that procedure yielded a slightly smaller Wilk's lambda in the discriminant analyses discussed above. Because the five scales include different numbers of items, average item scores were calculated and plotted. Also, for the purpose of facilitating comparisons between paired groups, absolute values of mean differences for each variable in each group were calculated. The results are presented in Figure 1.

Figure 1 shows that each pair of mean profiles is very similar with regard to both shape and level (7, p. 439). The greatest discrepancy seems to be between Group 5 of the k-means procedure and Group 2 of Ward's method. Within these groups, means differ by more than .20 on three of the five profile variables. Also, only 57 per cent of the k-means Group 5 members are in Ward's Group 2. Paired groups in which means are closest are k-means Group 1 and Ward's Group 6 and k-means Group 6 and Ward's Group 1. It is also noteworthy that Ward's Group 3 does not appear in the figure. That group included only eleven members, who
Fig. 1—Plot of Profile Means of Most Similar Groups Across the Two Analyses*

* - - k-means; — Ward's

**Numbers are absolute values of differences of each pair of variables within each group. **
were distributed between Group 2 (54.5 per cent) and Group 4 (36.4 per cent) of the k-means method. Ward's Group 2 included the largest number of members of both Groups 3 and 5 from the k-means method.

Thus, k-means Groups 1, 2, 4, and 6 were the most stable and Groups 3 and 5 were the least stable across the two analyses. Because Groups 3 and 5 are both similar to Group 2 of Ward's method, the two groups may, in fact, represent a single leisure type. It should be remembered, however, that the groups were found to be significantly different in the multiple discriminant analysis. Hypothesis 1 was confirmed.

Relationships between Group Membership and Other Measures of Leisure Functioning

The second two hypotheses involved an examination of the relationship between group membership and other leisure related variables. Because a smaller value of Wilk's lambda was associated with groups suggested by the k-means procedure, those groups were retained for further analyses. Analyses involved the examination of the relationship between group membership and measures of barriers to leisure involvement and three measures of preferred style of participation in recreation activities (5). The first of these analyses was accomplished by multiple discriminant analysis of twenty-four items on the Barriers to Leisure
Involvement Scale (5, pp. 72-85) and the second involved an analysis of variance of scores on the "Active," "Group," and "Risk" subscales of the Leisure Preferences Inventory (5, pp. 85-94).

The criterion selected for the discriminant analysis was minimizing Wilk's lambda. The results are summarized in Tables IX and X. Table IX is a summary of the canonical variables which were extracted to explain the significant variation. As evidenced by the small value of Wilk's lambda (2.8, p<.0001), the twenty-four items provided a substantial degree of discrimination among the groups. Also, it is important to note that two canonical variables were needed to explain the significant variation. The canonical correlations between these variables and group membership were .72 and .47.

A structure matrix (6) of rotated correlations between the canonical variables and the original variables (3) is presented in Table X. Variables with the highest correlations with the first canonical variable included the following:

- I know how to play a lot of games. (.44)
- There are enough places nearby where I can go play. (.41)
- It is easy for me to do new things. (.37)
- Other children usually let me play with them. (.34)

These items, and others correlating greater than .30 with
TABLE IX
SUMMARY OF CANONICAL VARIABLES FROM DISCRIMINANT ANALYSIS INVOLVING "BARRIERS" SCALE ITEMS

<table>
<thead>
<tr>
<th>Canonical Variable</th>
<th>Eigenvalue</th>
<th>Per cent of Variance</th>
<th>Cumulative Per cent</th>
<th>Canonical Correlation</th>
<th>After Variable</th>
<th>Wilk's Lambda</th>
<th>Chi Square</th>
<th>D.F.</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.08</td>
<td>64.82</td>
<td>64.82</td>
<td>.721</td>
<td>0</td>
<td>.282</td>
<td>238.49</td>
<td>75</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>2</td>
<td>.288</td>
<td>17.31</td>
<td>82.13</td>
<td>.473</td>
<td>1</td>
<td>.587</td>
<td>100.39</td>
<td>56</td>
<td>.0003</td>
</tr>
<tr>
<td>3</td>
<td>.168</td>
<td>10.09</td>
<td>92.22</td>
<td>.379</td>
<td>2</td>
<td>.756</td>
<td>52.61</td>
<td>39</td>
<td>.0714</td>
</tr>
<tr>
<td>4</td>
<td>.113</td>
<td>6.79</td>
<td>99.01</td>
<td>.319</td>
<td>3</td>
<td>.884</td>
<td>23.30</td>
<td>24</td>
<td>.5019</td>
</tr>
<tr>
<td>5</td>
<td>.017</td>
<td>.99</td>
<td>100.00</td>
<td>.128</td>
<td>4</td>
<td>.984</td>
<td>3.09</td>
<td>11</td>
<td>.9894</td>
</tr>
</tbody>
</table>
the first canonical variable (Table X) seemed to suggest that the dimension had to do with the availability of different kinds of leisure resources. The dimension, therefore, was named "Availability of Personal, Social, and Environmental Leisure Resources."

The second canonical variable was also interpretable. Items which reflected the highest correlation with that variable included the following.

I have a lot of friends to do things with. (0.77)
I can easily talk in a group. (0.62)
Other children usually let me play with them. (0.46)
Other people often ask me to play games with them. (0.42)

This dimension centered around social interaction and was labeled "Gregariousness/Sociability."

Two significant, interpretable canonical variables representing dimensions of personal and environmental barriers to leisure were evident from this analysis. Hypothesis 2 was retained.

Because interpretation of the groups was of central importance to this study, a follow up analysis was conducted to examine the pairwise group differences on each of the two canonical variables. This examination involved the application of Tukey's Honestly Significant Difference test. That procedure utilizes the studentized range distribution and sets the experimentwise error rate at
### TABLE X

**STRUCTURE MATRIX OF BARRIERS TO LEISURE INVOLVEMENT VARIABLES**

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Item</th>
<th>&quot;Resources&quot;</th>
<th>Gregariousness/Sociability</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>It is easy for me to talk to other people</td>
<td>.441</td>
<td>.068</td>
</tr>
<tr>
<td>17.</td>
<td>There are enough places nearby where I can go play</td>
<td>.415</td>
<td>.121</td>
</tr>
<tr>
<td>3.</td>
<td>It is easy for me to find fun things to do</td>
<td>.331</td>
<td>.202</td>
</tr>
<tr>
<td>14.</td>
<td>It is easy for me to start a new activity</td>
<td>.310</td>
<td>.194</td>
</tr>
<tr>
<td>5.</td>
<td>There is a park near me where I can play if I want to</td>
<td>.258</td>
<td>.066</td>
</tr>
<tr>
<td>16.</td>
<td>I have enough time to do the things I want to do</td>
<td>.241</td>
<td>.209</td>
</tr>
<tr>
<td>6.</td>
<td>I usually finish a game once I start</td>
<td>.229</td>
<td>-.028</td>
</tr>
<tr>
<td>9.</td>
<td>I have a lot of free time</td>
<td>.204</td>
<td>.069</td>
</tr>
<tr>
<td>2.</td>
<td>I have a lot of friends to do things with</td>
<td>.111</td>
<td>.765</td>
</tr>
<tr>
<td>24.</td>
<td>I can easily talk in a group</td>
<td>-.118</td>
<td>.620</td>
</tr>
<tr>
<td>12.</td>
<td>Other children usually let me play with them</td>
<td>.341</td>
<td>.461</td>
</tr>
<tr>
<td>4.</td>
<td>Other people often ask me to play games with them</td>
<td>.142</td>
<td>.417</td>
</tr>
<tr>
<td>22.</td>
<td>It is easy for me to do new things</td>
<td>.370</td>
<td>.400</td>
</tr>
<tr>
<td>1.</td>
<td>It is easy for me to talk to other people</td>
<td>.132</td>
<td>.393</td>
</tr>
<tr>
<td>11.</td>
<td>It is easy for me to tell other people what I think or feel</td>
<td>.120</td>
<td>.295</td>
</tr>
</tbody>
</table>
TABLE X—Continued

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Item</th>
<th>&quot;Resources&quot;</th>
<th>Gregariousness/Sociability</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.</td>
<td>I have enough money to play the games I like</td>
<td>.084</td>
<td>.126</td>
</tr>
<tr>
<td>10.</td>
<td>When there are many games to play, I can easily make a choice</td>
<td>.168</td>
<td>-.032</td>
</tr>
<tr>
<td>20.</td>
<td>I have enough games to play around my house</td>
<td>.095</td>
<td>.096</td>
</tr>
<tr>
<td>18.</td>
<td>For most problems, I can think of more than one answer</td>
<td>.146</td>
<td>.096</td>
</tr>
<tr>
<td>15.</td>
<td>If I have several answers to a problem, I can easily choose one</td>
<td>.109</td>
<td>.063</td>
</tr>
<tr>
<td>13.</td>
<td>I have enough money to do the things I want to do</td>
<td>.157</td>
<td>.105</td>
</tr>
<tr>
<td>21.</td>
<td>I have enough money to buy games</td>
<td>-.085</td>
<td>.255</td>
</tr>
<tr>
<td>23.</td>
<td>Work or school keeps me from having enough time to play</td>
<td>.084</td>
<td>.033</td>
</tr>
<tr>
<td>19.</td>
<td>It is hard for me to play the games I want to</td>
<td>-.035</td>
<td>.021</td>
</tr>
</tbody>
</table>

alpha (4, p. 90). In this case, the .01 level was selected because comparisons were made across both variables and accumulation of error was a concern. An adjustment for unequal cell sizes was made using a formula given by Kirk (4, p. 90). The canonical variables were expressed as T scores, with a mean of 50 and a standard deviation of 10.
Scoring was conducted such that high scores were indicative of a high perception of barriers.

Table XI summarizes the group means and standard deviations. The error mean square associated with the "Resources" variables was 97.90 and HSD was found to be 8.38. These statistics indicated that Groups 1, 5, and 6 scored significantly lower on the "Resources" barrier than Groups 2, 3, and 4. No other differences were statistically significant.

**TABLE XI**

**GROUP MEANS AND STANDARD DEVIATIONS ON THE LACK OF RESOURCES VARIABLE* 

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Groups Significantly Different**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>44.36</td>
<td>7.48</td>
<td>≲2, 3, 4</td>
</tr>
<tr>
<td>2</td>
<td>57.49</td>
<td>10.64</td>
<td>≳6, 1, 5</td>
</tr>
<tr>
<td>3</td>
<td>55.76</td>
<td>11.92</td>
<td>≳6, 1, 5</td>
</tr>
<tr>
<td>4</td>
<td>60.28</td>
<td>11.82</td>
<td>≳6, 1, 5</td>
</tr>
<tr>
<td>5</td>
<td>45.36</td>
<td>9.78</td>
<td>≲2, 3, 4</td>
</tr>
<tr>
<td>6</td>
<td>40.27</td>
<td>7.10</td>
<td>≲2, 3, 4</td>
</tr>
</tbody>
</table>

*Expressed as T Scores (x=50, s=10).

**Based on Tukey's Honestly Significant Difference Test (alpha at .01).

Table XII summarizes the group means associated with the "Gregariousness/Sociability" variable. The error mean square associated with that variable was 103.54 and HSD was found to be 8.61. Results indicate that Group 4 members
perceive significantly greater "Gregariousness/Sociability" barriers than any of the other groups. In addition, Group 3 members perceive greater "Gregariousness/Sociability" barriers than Groups 1 and 2. No other differences were found to be significant.

**TABLE XII**

GROUP MEANS AND STANDARD DEVIATIONS ON THE LACK OF GREGARIOUSNESS/SOCIABILITY VARIABLE*

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Groups Significantly Different**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>41.50</td>
<td>7.37</td>
<td>&lt;3, 4</td>
</tr>
<tr>
<td>2</td>
<td>44.00</td>
<td>9.74</td>
<td>&lt;3, 4</td>
</tr>
<tr>
<td>3</td>
<td>53.22</td>
<td>10.92</td>
<td>&lt;4; &gt; 1, 2</td>
</tr>
<tr>
<td>4</td>
<td>66.75</td>
<td>13.35</td>
<td>&gt;1, 2, 3, 5, 6</td>
</tr>
<tr>
<td>5</td>
<td>48.29</td>
<td>9.40</td>
<td>&lt;4</td>
</tr>
<tr>
<td>6</td>
<td>48.36</td>
<td>10.23</td>
<td>&lt;4</td>
</tr>
</tbody>
</table>

*Expressed as T scores (X=50, s=10).

**Based on Tukey's Honestly Significant Difference Test (alpha at .01).

The final step in the analysis of data involved an examination of the relationship between group membership and three preferred style of participation variables. These included a preference for activities which were active, activities involving groups of people, and activities involving risk (5, p. 92). Three one way analysis of variance tests were used. The significance of paired differences was examined through Tukey's Honestly Significant
Difference (HSD) test. Adjustments were made for unequal group sizes using the method given by Kirk (4, p. 90). Because of the large number of comparisons, alpha was set at .01 for each analysis.

Results of the analysis of variance involving the "active" variable are presented in Table XIII. The F ratio was significant at p=.003. The value of HSD was 1.96, suggesting that Group 1 had a significantly greater preference for an active style of participation than members of Group 4.

**TABLE XIII**

ANALYSIS OF VARIANCE SUMMARY INVOLVING "ACTIVE" STYLE OF PARTICIPATION PREFERENCES

<table>
<thead>
<tr>
<th>Source</th>
<th>D.F.</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>5</td>
<td>100.06</td>
<td>20.01</td>
<td>3.72</td>
<td>.003</td>
</tr>
<tr>
<td>Within Groups</td>
<td>194</td>
<td>1041.06</td>
<td>5.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>199</td>
<td>1141.12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Groups Significantly Different*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18.27</td>
<td>2.02</td>
<td>&gt;4</td>
</tr>
<tr>
<td>2</td>
<td>16.47</td>
<td>2.94</td>
<td>...</td>
</tr>
<tr>
<td>3</td>
<td>16.70</td>
<td>2.76</td>
<td>...</td>
</tr>
<tr>
<td>4</td>
<td>16.00</td>
<td>2.14</td>
<td>&lt;1</td>
</tr>
<tr>
<td>5</td>
<td>17.23</td>
<td>2.22</td>
<td>...</td>
</tr>
<tr>
<td>6</td>
<td>17.70</td>
<td>1.47</td>
<td>...</td>
</tr>
</tbody>
</table>

*Based on Tukey's Honestly Significant Difference Test. With alpha=.01, the critical value was 1.96.
Table XIV summarizes the analysis of variance involving the "Group" variable. This F ratio was also significant (p=.003). A critical difference value of 1.83 was found for HSD. Results suggested that members of Groups 1 and 5 prefer group oriented activities significantly more than members of Group 4.

**TABLE XIV**

ANALYSIS OF VARIANCE SUMMARY INVOLVING "GROUP" STYLE OF PARTICIPATION PREFERENCES

<table>
<thead>
<tr>
<th>Source</th>
<th>D.F.</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>5</td>
<td>88.70</td>
<td>17.74</td>
<td>3.79</td>
<td>.003</td>
</tr>
<tr>
<td>Within Groups</td>
<td>194</td>
<td>908.52</td>
<td>4.68</td>
<td>....</td>
<td>....</td>
</tr>
<tr>
<td>Total</td>
<td>199</td>
<td>997.22</td>
<td>.....</td>
<td>....</td>
<td>....</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Groups Significantly Different*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18.80</td>
<td>1.81</td>
<td>&gt;4</td>
</tr>
<tr>
<td>2</td>
<td>17.83</td>
<td>2.29</td>
<td>...</td>
</tr>
<tr>
<td>3</td>
<td>17.50</td>
<td>2.57</td>
<td>...</td>
</tr>
<tr>
<td>4</td>
<td>16.81</td>
<td>2.80</td>
<td>&lt;=5, 1</td>
</tr>
<tr>
<td>5</td>
<td>18.69</td>
<td>1.47</td>
<td>&gt;4</td>
</tr>
<tr>
<td>6</td>
<td>18.58</td>
<td>1.93</td>
<td>...</td>
</tr>
</tbody>
</table>

*Based on Tukey's Honestly Significant Difference Test. With alpha=.01, the critical value was 1.83.

Finally, the results of the analysis of variance associated with the "Risk" variable are presented in Table XV. That F ratio is also significant (p<.0001). Pairwise
comparison of mean differences based on an HSD of 1.82 revealed that members of Group 4 prefer risk oriented activities significantly less than Groups 1, 5, and 6.

**TABLE XV**

ANALYSIS OF VARIANCE SUMMARY INVOLVING "RISK" STYLE OF PARTICIPATION PREFERENCES

<table>
<thead>
<tr>
<th>Source</th>
<th>D.F.</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>5</td>
<td>166.81</td>
<td>33.36</td>
<td>7.18</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Within Groups</td>
<td>194</td>
<td>900.93</td>
<td>4.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>199</td>
<td>1067.75</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Groups Significantly Different</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16.53</td>
<td>1.61</td>
<td>&gt;4</td>
</tr>
<tr>
<td>2</td>
<td>15.13</td>
<td>2.53</td>
<td>...</td>
</tr>
<tr>
<td>3</td>
<td>14.75</td>
<td>2.56</td>
<td>...</td>
</tr>
<tr>
<td>4</td>
<td>13.76</td>
<td>2.34</td>
<td>&lt;6, 5, 1</td>
</tr>
<tr>
<td>5</td>
<td>16.31</td>
<td>1.64</td>
<td>&gt;4, 1</td>
</tr>
<tr>
<td>6</td>
<td>16.20</td>
<td>2.00</td>
<td>&gt;4</td>
</tr>
</tbody>
</table>

Summary

A complete interpretation of the "leisure types" suggested by the analysis of data is included in Chapter 5. At this point, however, it seems valuable to briefly summarize the characteristics of each group. This summary is presented in Table XVI. That table presents the profile
<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Level*</th>
<th>Scatter**</th>
<th>Shape***</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30</td>
<td>2.76</td>
<td>.043</td>
<td>High: Control (2.81)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Low: Needs/Playfulness (2.72)</td>
</tr>
<tr>
<td>2</td>
<td>30</td>
<td>2.11</td>
<td>.297</td>
<td>High: Playfulness (2.38)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Low: Needs (1.62)</td>
</tr>
<tr>
<td>3</td>
<td>44</td>
<td>2.15</td>
<td>.143</td>
<td>High: Depth (2.38)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Low: Control (2.00)</td>
</tr>
<tr>
<td>4</td>
<td>21</td>
<td>1.77</td>
<td>.161</td>
<td>High: Competence/Needs (1.94)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Low: Playfulness (1.59)</td>
</tr>
<tr>
<td>5</td>
<td>35</td>
<td>2.39</td>
<td>.118</td>
<td>High: Playfulness (2.52)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Low: Needs (2.24)</td>
</tr>
<tr>
<td>6</td>
<td>40</td>
<td>2.50</td>
<td>.206</td>
<td>High: Depth (2.79)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Low: Playfulness (2.26)</td>
</tr>
</tbody>
</table>

*Mean of Means on profile variables. 3.0 was the maximum possible and 0 was the minimum.

**Standard deviation across means of profile variables.

***Highest and lowest profile variables.
TABLE XVI—Continued

Relationship to Other Variables

<table>
<thead>
<tr>
<th>Group</th>
<th>Resources</th>
<th>Barriers</th>
<th>Groups Significantly Different</th>
<th>Gregariousness/Sociability Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \bar{X} )</td>
<td></td>
<td></td>
<td>( \bar{X} )</td>
</tr>
<tr>
<td>1</td>
<td>44.4</td>
<td></td>
<td>(&lt;2, 3, 4)</td>
<td>41.5</td>
</tr>
<tr>
<td>2</td>
<td>57.5</td>
<td>( &gt;1, 5, 6 )</td>
<td></td>
<td>44.0</td>
</tr>
<tr>
<td>3</td>
<td>55.8</td>
<td>( &gt;1, 5, 6 )</td>
<td></td>
<td>53.2</td>
</tr>
<tr>
<td>4</td>
<td>60.3</td>
<td>( &gt;1, 5, 6 )</td>
<td></td>
<td>66.8</td>
</tr>
<tr>
<td>5</td>
<td>45.4</td>
<td>(&lt;2, 3, 4)</td>
<td></td>
<td>48.3</td>
</tr>
<tr>
<td>6</td>
<td>40.3</td>
<td>(&lt;2, 3, 4)</td>
<td></td>
<td>48.4</td>
</tr>
</tbody>
</table>

- Based on Tukey's HSD with alpha at .01.
### TABLE XVI—Continued

**Relationship to Other Variables**

<table>
<thead>
<tr>
<th>Group</th>
<th>Active</th>
<th>Group</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{x}$</td>
<td>Groups Significantly Different</td>
<td>$\bar{x}$</td>
</tr>
<tr>
<td>1</td>
<td>18.3</td>
<td>$&gt;4$</td>
<td>18.8</td>
</tr>
<tr>
<td>2</td>
<td>16.5</td>
<td>$\ldots$</td>
<td>17.8</td>
</tr>
<tr>
<td>3</td>
<td>16.7</td>
<td>$\ldots$</td>
<td>17.5</td>
</tr>
<tr>
<td>4</td>
<td>16.0</td>
<td>$&lt;1$</td>
<td>16.8</td>
</tr>
<tr>
<td>5</td>
<td>17.2</td>
<td>$\ldots$</td>
<td>18.7</td>
</tr>
<tr>
<td>6</td>
<td>17.7</td>
<td>$\ldots$</td>
<td>18.6</td>
</tr>
</tbody>
</table>
description of each group and shows pairwise significant differences between groups on the two canonical variables and the three activity style preference variables. Group 1 seems to be functioning best at leisure, as reflected by its high profile of variable means and small degree of scatter. Group 2 had the greatest "scatter," (7, p. 429) or standard deviation computed from the means of profile variables. Group 3 included the greatest number of cases and had the third lowest profile level (7, p. 439), or mean of variable means in the group profile. The leisure functioning of Group 4 seemed to be the most problematic, as evidenced by its very low profile level and its low scores on all related variables. Groups 5 and 6 were the "in between" groups, with the stability of Group 5 being somewhat questionable across the two analyses.
CHAPTER BIBLIOGRAPHY


5. Leisure Diagnostic Battery Project, The Leisure Diagnostic Battery Background, Conceptualization, and Structure, Denton, North Texas State University, 1982.


CHAPTER V

INTERPRETATION AND DISCUSSION

Introduction

This study involved the examination of a typology of leisure, with the initial development of theory to account for the functioning of individuals in leisure as the central purpose. This theory, in turn, has implications for the assessment and facilitation of leisure functioning of clients of leisure service professionals. According to Maddi (31, pp. 13-17), three major components are needed within the theory: (1) a core statement, (2) a developmental statement, and (3) a statement of concrete peripheral characteristics.

The core statement associated with this theory was discussed in Chapter I. Two parts of a core statement may be considered: (1) a statement of core tendency, and (2) a statement of core characteristics (31). The statement of core tendency associated with this theory is that, in their free time endeavors, people seek pleasure. That statement is based on the work of Olds (37), Heath (20), and others (17), who have investigated the biological basis of pleasure, and on the work of Smith (43) who has applied those findings to the task of explaining play behavior.
The second part of the core statement is the statement of core characteristics. That statement, which serves to define the content or nature of the core tendency, was based on the work of numerous scholars who have identified "perceived freedom" as the "essential criterion" for leisure experiences to occur (32, p. 15; 36, 24). Characteristics of perceived freedom are assumed to include perceived competence in free time activities, perceived leisure control, ability to satisfy particular needs through free time activities, ability to achieve a depth of involvement in free time experiences, and playfulness (25). Thus, the core statement associated with the theory proposes that leisure involves pleasure seeking behavior and a perception of freedom.

Statements of developmental and concrete peripheral characteristics are the subject of this chapter. The development of these statements involves an interpretation of the typology which was suggested by the analysis of data described in Chapters 3 and 4. This interpretation includes a description of each type; a proposal of developmental, or causal factors which may create each type; and a proposal of "peripheral" variables which may be descriptive of each type. In addition, a list of questions for future research is included at the end of this chapter.

The discussion of each type follows a theoretical model for the delivery of therapeutic recreation service
which was proposed by Compton and Witt (7) in their philosophical position statement for the National Therapeutic Recreation Society (NTRS). That model served as the basis for a policy statement adopted by NTRS in November, 1981 (7). It describes a continuum of freedom in leisure on which any client may be located. Using Leisure Diagnostic Battery scores, individuals may be associated with particular points along that continuum (13, pp. 4-5). Clients at the lower end are characterized by a low perception of control over their leisure pursuits, extrinsic motivation, and a sense of helplessness. Clients at the opposite end of the continuum are characterized by a high perception of control, intrinsic leisure motivation, and a perception of freedom in leisure.

The location of each type along this continuum is of particular value to recreation therapists because it suggests specific causal agents and intervention strategies which may be useful for individuals at each point in the continuum. Given a "type" associated with the "perceived freedom" end of the continuum, for example, recreation therapists should assume a supportive, resource role, with minimal control over the activities of the client. For an individual whose type is associated with the opposite end of the continuum the implied service is much different. Under these circumstances, the recreation therapists should assume
a "therapist" role, characterized by much more individualized attention and a higher degree of control over the client's leisure behavior.

Awareness of the nature of the profiles of types at each level should also assist therapists in designing remedial strategies to enhance the perceived freedom of their clients. Because a lack of ability to satisfy leisure needs seems to be the major problem of Type 2, for example, specific strategies aimed at this variable may be implemented and be more effective than a more general approach (13). Thus, the examination of the typology relative to the Compton and Witt model (7) would seem to facilitate both diagnosis and remediation of individuals with leisure problems.

A discussion of the characteristics of each of the identified types is presented in the following section. Within the discussion of each type are some possible developmental factors (31), concrete peripheral characteristics (31), and recreation services implications. For the purpose of parsimony (31, pp. 654-656), the discussion is limited to variables which seem to be most relevant to the practice of therapeutic recreation. A summary of these is presented in Table XVII.

Many approaches to the organization of the discussion are possible. Types could be arranged according to the level of profile means, according to similarity of between
### TABLE XVII

POSSIBLE DEVELOPMENTAL FACTORS, CONCRETE PERIPHERAL CHARACTERISTICS, ROLE OF THERAPEUTIC RECREATION PROFESSIONAL, AND THERAPEUTIC RECREATION TREATMENT STRATEGIES ASSOCIATED WITH EACH TYPE

<table>
<thead>
<tr>
<th>Type</th>
<th>Possible Developmental Factors</th>
<th>Possible Concrete Peripheral Characteristics</th>
<th>Role of Rec Therapist</th>
<th>Treatment Strategies</th>
</tr>
</thead>
</table>
| 1    | Presence of appropriate leisure resources  
Some degree of success in leisure pursuits  
Optimally directive "tutors" | Problem solving skills  
Emotional health  
Cognitive development  
Positive attitude toward leisure  
Good social skills  
Decision making skills  
Knowledge of leisure opportunities | Resource | Provide information  
Provide requested resources, etc. |
| 2    | Limited leisure resources  
Tutors who over-justify participation | Tension  
Anxiety  
Hostility  
Deviance | Therapist or Leisure Educator | Examine the play environment for complexity  
Examine the nature of the feedback the client receives for participation |
| 3    | Lack of leisure resources  
A history of failure in activities  
Absence of choice opportunities | Reluctance to participate in activities  
Low Gregariousness/Sociability | Leisure Educator | Build success experiences  
Emphasize choices  
Provide messages of competence  
Deal with failure before dispositional attributions are made |
<table>
<thead>
<tr>
<th>Type</th>
<th>Possible Developmental Factors</th>
<th>Possible Concrete Peripheral Characteristics</th>
<th>Role of Rec Therapist</th>
<th>Treatment Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>History of failure</td>
<td>Depression, Antisocial Behavior</td>
<td>Therapist</td>
<td>Intercept cycle</td>
</tr>
<tr>
<td></td>
<td>Lack of leisure resources</td>
<td>Inability to recognize success</td>
<td></td>
<td>of failure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lack of motivation to participation</td>
<td></td>
<td>&quot;Attribution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overly concerned with body</td>
<td></td>
<td>Therapy&quot;</td>
</tr>
<tr>
<td>5</td>
<td>Limited leisure resources</td>
<td>A degree of tension, anxiety, hostility</td>
<td>Leisure Educator or</td>
<td>Work with leisure</td>
</tr>
<tr>
<td></td>
<td>Tutors who tend to overjustify participation</td>
<td>Extroverted, Socially spontaneous</td>
<td>Resource or Leisure</td>
<td>resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Educator</td>
<td>Examine the feedback</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>from significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>others</td>
</tr>
<tr>
<td>6</td>
<td>Tutors who are over-directive but do not overjustify Limited opportunities for choice</td>
<td>Introverted, Conforming in group situations, Curious, inquisitive</td>
<td>Leisure Educator</td>
<td>Increase awareness</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>or Leisure Educator</td>
<td>of choice</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Encourage spontane-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ous behavior</td>
</tr>
</tbody>
</table>
type profile shapes, or according to the similarity of therapeutic recreation strategies which might be associated with the various types. For the sake of consistency with the previous chapter, however, the types are discussed in the order in which they were identified in the cluster analysis and described in Chapter IV.

Interpretation of the Typology

**Type 1**

According to Maddi (31), theories of personality often suggest that one personality type is ideal or desirable. Given the theory of leisure functioning proposed in this study, Type 1 would seem to be the preferred type. Thirty of the 200 individuals were classified into this type. These individuals had a higher level of profile means (2.76) than any other group. In addition, they perceived significantly less "Resources" and "Gregariousness/Sociability" barriers than other groups and they scored higher than Group 4 on active, group, and risk style of participation preferences. These individuals, therefore, would be placed at the high end of the Compton and Witt continuum (7).

In terms of developmental characteristics, it could be expected that Type 1 individuals have available a variety of personal and environmental leisure resources. Although the specific resources which might be present for a
particular individual would vary according to learned activity preferences (2), examples of such resources might include sports equipment, magazines, a sewing machine, pets, a neighborhood park, available transportation to recreation facilities, a vacant lot, or individuals of similar age and interests living nearby. The relationship between such resources and optimal leisure functioning has been proposed by several authors (6; 14, pp. 134-139; 8) and has been demonstrated empirically by Bishop and Chace (4). Support for this position was also provided by the "Availability of Personal and Environmental Leisure Resources" variable found in the discriminant analysis discussed in Chapter IV.

In addition to environmental resources, it might be assumed that the Type 1 individual has enjoyed a degree of success in her leisure pursuits, whether that perception of success be based on normative or ipsative comparisons. This condition may be assumed to be present because continuous failure leads to a perception of "generalized helplessness," which is the antithesis of perceived freedom (24, pp. 345-348; 13, p. 4). As Iso-Ahola (24, pp. 345-348) has pointed out, individuals who are functioning well at leisure are able to avoid the development of "generalized helplessness" by attributing successful outcomes to personal ability and failure to uncontrollable, external causes. Thus, in order to be functioning well at leisure, individuals must perceive
some degree of success in their leisure pursuits. Parents, teachers, recreation leaders, and peers who deal effectively with an individual's attribution of successes and failures (24; 13, pp. 23-26), therefore, can be considered developmental factors in the theory of leisure functioning.

Parents, teachers, play leaders, and peers may also play another very important role in development of a Type 1 individual. Lieberman (28) has established the relationship between playfulness and creativity. In addition, Bishop and Jeanrenaud (5), based on the works of Hutt (23), Linford and Jeanrenaud (29), Hull (22), Skinner (42), Berlyne (3), Fiske and Maddi (16), Piaget (39), Harvey, Hunt, and Schroeder (19), Eysenck (15), Torrance (46), Sutton-Smith (44), and Bishop and Chace (4), have proposed a theoretical model of the development of creativity during play experiences. That model emphasizes the importance of the "directiveness" of "tutors" (5) in influencing creativity. The tutor (parent, teacher, play leader, etc.) who utilizes a moderate level of directiveness and an individually appropriate degree of novelty and complexity, can facilitate the development of creativity. The overbearing, over-directive tutor who concentrates on verbal instructions and constant verbal feedback, on the other hand, is undermining the development of creativity. If we may assume that the "spontaneity" dimension of playfulness is influenced by the development of such creativity dimensions as divergent
thinking and imagination (28), it follows from Bishop and Jeanrenaud's model that "tutors" can play a major role in the development of a Type 1 individual.

Major developmental factors in creating a Type 1 individual, therefore, include the availability of personal, environmental, and physical resources and the presence of an appropriately skilled "tutor." Several concrete peripheral characteristics may also be proposed. Many have been suggested in the literature, but perhaps those for which the greatest support exists include positive concept of self, problem solving skills, emotional health, and cognitive development (44, 24). In addition, such characteristics as positive leisure attitudes, social skills, decision making ability, proficiency in recreation activities, and knowledge of leisure resources have all been proposed as characteristics of individuals who are functioning well at leisure (34).

In short, the Type 1 individual seems to be functioning very well at leisure. Opportunities, choices, and skilled "tutors" may be present in the social and family environment of the Type 1 individual. In terms of Compton and Witt's (7) model, the appropriate leadership role for the therapeutic recreator working with a Type 1 client would be as a resource and an enabler, with minimal control over the leisure behavior of the client.
Type 2

Of the six leisure types suggested in this investigation, Type 2 individuals (N=30) had the second lowest level of profile means. The analysis of data described in Chapter IV also suggested that this group perceived greater problems with the availability of resources than the three types which had the highest level of profile means (Types 1, 5, and 6). Type 2 individuals also seemed to be more gregarious than Type 4, which had the lowest level of profile means.

The variable on which Type 2 scored the lowest was leisure needs. The mean of Type 2 on that variable was below the one standard deviation criterion which the Leisure Diagnostic Battery User's Guide proposes as being particularly indicative of a problem (25). The development of an ability to satisfy needs through free time pursuits, therefore, seems to be the major challenge of tutors working with the Type 2 individual.

In order to delineate possible developmental factors associated with Type 2, it is necessary to consider the nature of the leisure needs concept utilized in the Leisure Diagnostic Battery (12). Measurement of that concept involves an examination of the extent to which individuals are able to satisfy a variety of needs which have been suggested by various classical, recent, and modern theories of play (14). Needs examined, therefore, include a basic, "chronic" (12, p. 31) need for optimal arousal and such
situation specific needs as catharsis, relaxation, compensation, and bleeding off of surplus energy. These needs are assumed to be "... innate characteristics inherent in being" (12, p. 31) rather than being learned wants. Because the desire to placate these needs is inherent in the individual, it may be assumed that actions emanating from those needs are intrinsically motivated behaviors (12).

The major problem of the Type 2 individual, therefore, seems to be a lack of intrinsic motivation. Because of this lack of motivation, inherent needs are not being met. A variety of causes, or developmental factors are possible. First, intrinsic motivation may be lacking due to a play environment which lacks opportunity for such arousal regulating mechanisms as novelty, complexity, and incongruity (14, pp. 85-100). Recreation equipment such as toys, games, sports equipment, books, or crafts supplies may be either absent from the individual's environment or existing equipment may be of less than optimal complexity due to nonmanipulable or overly challenging characteristics (14, p. 98). In addition, since social interaction is a primary source of complexity (14, p. 139), the Type 2 individual may have a limited number of friends or playmates.

Another possible developmental factor has to do with the tutors in the individual's environment. As several
studies have shown (26; 27; 24, pp. 90-91), intrinsic motivation may be undermined by extrinsic rewards. When extrinsic rewards such as prizes, verbal praise, trophies, or special privileges are presented to individuals for behaviors which were previously undertaken for the placation of intrinsic needs, the individual's motives change. Rather than being motivated by internal needs, the behavior becomes dependent upon the presence of these external cues. Overzealous tutors may exist in the Type 2 individual's environment, "overjustifying" (26, 27) the individual's participation in free time pursuits.

Thus, developmental factors associated with Type 2 individuals may include the influence of tutors and the lack of appropriate play resources. Concrete peripheral characteristics (31) may also be proposed, based on the low ability of the Type 2 individual to satisfy situation specific needs through free time pursuits. Corresponding to the needs implied by the Surplus Energy, Compensation, Relaxation, and Catharsis theories of play (14), the Type 2 individual may be tense, anxious, frequently worried, and often hostile.

The relatively high score of this type on playfulness provides further grounds for proposing concrete peripheral characteristics. Playfulness, as defined by Lieberman (28) and by the Leisure Diagnostic Battery (1), consists of cognitive, social, and physical spontaneity, manifest joy,
and sense of humor. Slightly deviant social behavior is emphasized (28, 1). Type 2 individuals, who score high on playfulness but low on ability to satisfy needs, may be excessively deviant and may have strained relations with particular peers and associates.

The recreation therapist working with the Compton and Witt model (7) and with this typology would locate the Type 2 individual near the bottom of the continuum. Of particular importance in "remediation" (13) would be the development of intrinsic motivation. The therapist would examine the play environment of the individual and evaluate it in terms of the degree of complexity which would be optimal for that individual. Significant others, including parents, teachers, peers, siblings, and other recreation leaders would be considered in terms of their practices of providing praise and external rewards. Novel means of attracting attention to activities which might stimulate the individual's curiosity might be planned (14, pp. 84-85). Finally, the therapist would consider the nature of the client's relationships to peers and associates to determine if social problems were present.

Type 3

Type 3 included forty-four individuals and was the largest of the six types suggested by the analysis. The level of the profile means was third from the lowest, at
2.15 on a scale ranging from 0 to 3. Individuals in this group scored highest on the measure of depth of involvement in leisure experiences (2.38) and lowest on the measures of perceived leisure competence (2.07) and perceived leisure control (2.00). None of the means in the profile, however, fell below the criterion suggested in the Leisure Diagnostic Battery User's Guide as being indicative of a problem.

In terms of possible developmental factors, Type 3 scored significantly higher on the "Resources" barrier than the three types with the highest mean profiles. A lack of personal, social, and physical resources, therefore, may be a causal agent in creating a Type 3 individual. In addition, the relatively low scores on the Perceived Leisure Competence Scale would suggest that some degree of failure has been experienced by these individuals in their leisure pursuits. This failure, along with an absence of opportunities for making choices could lead to the low scores of this type on the measure of perceived leisure control (13, pp. 23-25).

A related concrete peripheral characteristic of Type 3 might be a reluctance to participate in new activities due to a perceived lack of ability to effect the process and outcome. This characteristic would be consistent with White's (47) theory of competence motivation and Iso-Ahola's (24) application of those ideas to the explanation of leisure behavior. Individuals engage in behaviors from which they
derive feelings of competence and self determination (24, pp. 195-199). A history of failure would lead to a lack of interest in new pursuits due to an expectation of failure and lack of control. This reluctance to participate in new activities would have serious implications due to the importance of developing a broad repertoire of leisure activity skills during childhood and youth (24, pp. 132-138).

An additional concrete peripheral characteristic of Type 3 individuals would be a relatively low degree of gregariousness/sociability. This characteristic was suggested by the results of the data analysis in Chapter IV. Type 3 individuals scored significantly higher on the Gregariousness/Sociability barrier than Type 1, which had the highest overall mean profile. Type 3 individuals, therefore, may not only avoid new activities, but they may avoid new social contacts as well.

In terms of the Compton and Witt (7) model, Type 3 individuals would seem to fall somewhere in the middle of the continuum. If intervention were considered to be important, "leisure education" efforts would focus on building success experiences or perceived success experiences for the Type 3 client. Also, the therapist should be concerned with the client's choice opportunities and perceived choice opportunities. In this process, such strategies as redefining goals; emphasizing choices
between, within, and during activities; providing feedback that includes messages of competence; and dealing with failure before attributions of incompetence are made would be particularly relevant (13, pp. 23-27).

**Type 4**

Type 4 individuals seemed to have the greatest problems relative to leisure functioning. The twenty-one individuals categorized into this type had the lowest level of profile means of the six groups (1.77). Mean scores for each of the five component measures of perceived freedom fell below the criterion suggested in the Leisure Diagnostic Battery User's Guide (25) as being indicative of the existence of a problem. Type 4 individuals also scored significantly higher on the "Gregariousness/Sociability" barrier than each of the five other groups; they indicated a greater perception of "Resources" barriers than Types 1, 5, and 6; they scored significantly less than Types 1, 5, and 6 on the measure of "Risk" style preference; they scored significantly lower than Types 5 and 1 on the measure of "Group" style preferences; and they scored significantly lower than Type 1 on the "Active" style preference measure. Collectively, these results are suggestive of a troubled individual with a sense of "generalized helplessness" in leisure (13, 24, 41).

A variety of developmental factors have been proposed which may create a Type 4 individual (24, 11, 18). Based on
attribute theory, Iso-Ahola (24, pp. 332-334) has summarized these factors in a theoretical model. In that model, it is assumed that generalized helplessness is a function of continuous exposure to "uncontrollable events and outcomes" and attributions of helplessness in these events and outcomes to "personal abnormality and inadequacy" (24, p. 333). When these attributions are reinforced by significant others in the individual's social environment, generalized helplessness is even more likely to occur (24, p. 333).

Developmental factors associated with the Type 4 individual, therefore, could include any consistently uncontrollable event encountered by an individual. The individual might experience repeated failures in activities which are popular within his or her peer group. Generalized helplessness might result from pressures from parents, teachers, recreation therapists, or other tutors to participate in activities in which the skills of the individual are poor. Or, as Iso-Ahola suggests, individuals with newly acquired handicaps may be particularly amenable to generalized helplessness because of a perception of abnormality (24, p. 333). Finally, as the results of the analysis of data in this study suggest, generalized helplessness may be a result of a lack of play resources. The fewer the number of resources an individual has, the less
opportunity he or she has for controlling how free time may be spent and thus the opportunity for self determination may be limited. The problem becomes even more prominent when overbearing tutors emphasize the failures and inadequacies of the individual.

The consequences of generalized helplessness are many. These consequences may be considered concrete peripheral characteristics in the overall theory. Yankelovich (49) found that drug abusers typically have a history of failure, which leads to feelings of helplessness and depression and, ultimately, to such antisocial behaviors as substance abuse, vandalism, and criminal behavior. Iso-Ahola (24, p. 333) has suggested that generalized helplessness in leisure may extend to other aspects of individuals' lives and create poor work performance and severe depression. Finally, generalized helplessness impedes an individual's ability to cope with adverse situations and to "... escape from environmental stress producers" (24, p. 306) which may in fact be controllable.

Seligman (41) has indicated that the effects of helplessness may be considered in three dimensions: cognitive, motivational, and emotional. In terms of cognitive effects, the helpless individual will not recognize success in activities even when his efforts are considered successful by external judges. Motivationally, the helpless individual will have little desire to
participate in activities and will not expect to succeed in those in which he does become involved (41). Finally, the helpless individual will have a degree of depression and such indicators of depression as anxiety, guilt feelings, tension, and somatic concern (38, p. 134). If the LDB is indeed a measure of a dimension of perceived freedom and generalized helplessness (11), numerous important peripheral characteristics may be associated with the Type 4 individual.

Relative to the Compton and Witt model (7), the appropriate role for a therapeutic recreation professional working with a Type 4 client would be that of a therapist. Highly individualized, detailed planning would be required and the therapist would initially assume a substantial degree of control over the leisure behavior of the client. Specific treatment approaches might include leisure counseling (18) or the implementation of the detailed remediation process which is presented in the Leisure Diagnostic Battery Remediation Guide (13). This latter process implies an identification of the causes of dispositional attributions in failure situations and an attempt to help the individual to begin to attribute failures to situational factors. Regardless of the overall framework within which remediation was planned, however, it can be assumed that the process should be aimed at interrupting the cycle of failure which created the condition of generalized helplessness.
**Type 5**

Thirty-five individuals were categorized into Type 5. That type had the third highest level of profile means (2.39) of the six types. Type 5 individuals scored significantly lower on the "Resources" barrier than Types 2, 3, and 4. They also seemed to be more gregarious and more favorable toward "Group" and "Risk" oriented activities than Type 4. The variable on which this type scored highest was playfulness (2.52) and the variable on which they scored lowest was ability to satisfy needs (2.24). None of the means in the profile of this type, however, fell below the criterion suggested in the Leisure Diagnostic Battery User's Guide as being indicative of a problem.

Although the level of mean profiles of Type 2 and Type 5 differs, those two types appear very similar in terms of shape. In both cases, the rank order of the variables according to the magnitude of means is the same. The measure of playfulness had the highest mean, followed by the measures of perceived leisure competence, perceived leisure control, depth of involvement in leisure, and leisure needs. This relationship suggests that the difference between Types 2 and 5 may simply be in terms of the strength or prominence of the developmental factors. Type 5 individuals, therefore, may be associated with such factors as limited leisure
resources and tutors who tend to "overjustify" (26, 27) participation in leisure activities.

Type 5 individuals might also have the same concrete peripheral characteristics as Type 2 individuals. As discussed earlier, these characteristics might include a degree of tension, anxiety, and hostility. These characteristics are associated with an inability to satisfy leisure related needs through play and recreation activities. In addition, the high scores of this Type on the playfulness variable (2.52) suggests that Type 5 individuals may be somewhat extroverted and socially spontaneous.

Type 5 would be associated with the upper end of the Compton and Witt (7) continuum. The appropriate role for the therapeutic recreation professional would again be either that of a "leisure educator" or a resource, depending upon the specific characteristics of the individual. Type 5 individuals who seemed to be particularly tense or hostile, for example, might be in need of special remedial efforts. If intervention was considered to be appropriate, the therapist should focus on the leisure resources of the individual and on the nature of the feedback the individual receives from significant others.

Type 6

Type 6 included forty cases and had the second highest level of profile means (2.50). This type scored highest on
the measure of depth of involvement in leisure (2.79) and lowest on playfulness (2.26). Types 2, 3, and 4 scored significantly higher on the "Resources" barrier and Type 4 individuals scored significantly lower than Type 6 on the measure of "Risk" style of participation preferences.

In considering possible developmental factors, it is important to note that the two variables on which this type scored lowest were playfulness and perceived leisure control. Each of these variables is related to the degree of self determination an individual perceives relative to leisure. As suggested in the discussion associated with Type 1, overdirective tutors in an individual's environment may inhibit creativity and, therefore, playfulness (28). In addition, the opportunity to make choices is important to the development of a perception of control in leisure (24, pp. 195-196; 13, pp. 22-23). A primary factor in the development of a Type 6 individual, therefore, might be the presence of overdirective and over protective parents, peers, teachers, recreation leaders, or significant others. The likelihood that this degree of control is due to the presence of such tutors rather than being associated with limitations on choice imposed by a lack of resources is suggested by the scores on Type 6 individuals on the "Resources" barrier. Those scores did not differ
significantly from Types 1 and 5, who would be associated with the high end of Compton and Witt's (7) continuum.

The relatively low scores on playfulness and perceived leisure control also suggest some concrete peripheral characteristics. Both of those variables are associated with social relationships. Social spontaneity, manifest joy, and sense of humor are all dimensions of playfulness (28, 1) and control is measured, in part, by the extent to which individuals are able to make decisions that affect or influence others (11). Given the relatively low scores on playfulness and perceived leisure control, Type 6 individuals might be expected to be somewhat introverted and conforming in group situations.

The very high mean score (2.79) of Type 6 on the measure of depth of involvement provides further information concerning concrete peripheral characteristics. Because that variable measures a dimension of intrinsic motivation (11, pp. 39-55), it may be assumed that Type 6 individuals are able to focus on activities which are of personal interest and that they are curious and inquisitive (14, pp. 84-85). Although significant others may make a few decisions which affect the Type 6 individual's leisure behavior, they do not seem to provide rewards and incentives which overjustify that individual's personal activity interests.
The Type 6 individual seems to be functioning very well in leisure. That type would be associated with the upper end of the Compton and Witt continuum and an appropriate leadership role would be either that of a "leisure educator" or a resource (7). If developmental efforts were made, these would center around increasing the individual's awareness of choices in his or her environment and encouraging spontaneous, playful behavior.

Discussion

Theory must evolve from numerous types of inquiry over an extended period of time. In the process, its assumptions and propositions can be expected to be reconsidered and refined many times. This study was intended to organize some existing knowledge about leisure functioning as an early step in theory development. As such, it is appropriate that this study ultimately raised many questions for future exploration. Important questions in the next step of development must address issues of the validity and the value of the theory.

In terms of validity, perhaps the most important question for future study is replication of the results of this study with additional samples from other populations. Little is known of the nature of perceived freedom and how it may vary according to socioeconomic factors, cultural factors, and stage in the lifecycle. Each of these factors
would seem to influence the type and availability of leisure
resources in one's environment and perhaps the behavior of
tutors as well.

Comparison of the results of this study with those of
previous studies involving adults, provides some evidence
of the existence of a Type 4 among older groups. In London,
Crandall, and Fitzgibbons' (30) study of college students,
one group was found which "liked leisure less" and generally
viewed all activities as being lower in "Feedback" and
"Positive Interpersonal Involvement" than other groups. In
this study, Type 4 individuals showed less "Gregariousness/
Sociability," less "Availability of Personal, Social, and
Physical Leisure Resources" and less preference for active,
group, and risk oriented leisure activities than other
groups. Thus, Type 4 individuals could be expected to "like
leisure less" and to not associate "Positive Interpersonal
Involvement" with leisure activities.

Evidence of a Type 4 in populations other than college
students can be found in the results of other related
studies. In Duncan's (10) study, two types were found which
were characterized by a high degree of participation in such
individual oriented activities as reading and television
watching, with minimal participation in outdoor sports,
playing with children, and fishing with others. These types
may correspond to Types 3 and 4, which preferred group
oriented activities less than other types.

Other studies of adults have identified types which may
correspond to the "passive" and "nonrisk" style preference
of Type 4 in this study. Duncan (10, p. 120) found an
"inactive" type in analyses of data from both males and
females. Romsa (40, p. 39) found a cluster which had an
"unusually low level of participation" in recreation
activities. Ditton, Goodale, and Johnsen (9, p. 289)
labeled one of their clusters "infrequent participants."
Finally, Tatham and Dornoff (45, p. 15) found a cluster
characterized by participation in "... activities requiring
the individual to do little more than be a spectator."
Thus, particularly if a passive, nonrisk style of partici-
pation preference may be equated with infrequent
participation, some evidence exists that the Type 4
perception of leisure may be found in older populations.
Additional research is needed, however, to validate this
relationship and to determine the extent to which typology
developed from a "leisure as a state of mind" perspective
corresponds to typologies developed from a leisure as
activity perspective (35).

Another issue related to validity is the stability of
individuals' perceptions of leisure over time. Reliability
is a necessary condition for validity. Although internal
consistency estimates for the individual Leisure Diagnostic
Battery Scales on which the typology in this study was based are quite high (.88 to .90), stability coefficients are somewhat lower, ranging from .75 to .82 (11, pp. 34-42). Although these coefficients suggest some degree of stability, they also suggest some degree of fluctuation of individuals' scale scores over time. Future research might examine the extent to which individuals are classified into the same Type across two administrations of the LDB.

In addition to the question of validity, the value and usefulness of this line of research must be examined. It will be important to know the extent to which the suggested remediation strategies associated with each type bring about the desired changes. The benefits of being one of the higher types will need to be explored. Are Type 1 individuals characterized by mental health, as proposed by Michaelis (33) and creativity, as suggested by Bishop and Jeanrenaud (5)? Does the behavior of individuals differ across the various types? Are the lower types more likely to be depressed and to commit antisocial acts (24, pp. 156-159)? What is the effect of the onset of a handicapping condition on leisure functioning and what role does it play in the overall process of rehabilitation (24, pp. 332-338; 18)? These questions of between type differences are all testable and are important in determining the value of continued development of a theory of leisure functioning.
The value of this inquiry to recreation planning is also important. Howard and Crompton (2) have suggested that, although "little work" has been completed in this area, the development of "psychographic profiles" (2, p. 355) might be a useful basis on which planners may develop market segments. The finding that differences exist among the six types identified in this study relative to style of participation preferences provides support for Howard and Crompton's proposition. As the authors suggest, "just how valuable the psychographic profile basis will become is yet to be seen" (2, p. 355).
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