

AN ABSTRACT OF THE THESIS OF

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Title: MULTIVARIATE RELATIONSHIPS BETWEEN LEISURE
ACTIVITIES AND PERSONALITY

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Purpose of the Study

This investigation was an attempt to assess the relationship between selected variables of personality and leisure activity preferences using multivariate statistical procedures. It was shown that previous attempts to explain man's use of leisure have persistently emphasized demographic variables such as income, sex, occupation and age. While this concentration on demographic variables has provided some useful information, it has failed to provide a comprehensive explanation of leisure behavior.

The inability of social indices to provide a complete explanation prompted some investigators to explore the psychological dimensions of leisure, specifically, the effect of personality variables on free time activity preferences. Empirical results provided by these investigators were found to be inconsistent and inconclusive. It was

suggested that a primary reason for the inconclusive findings could be the limited statistical procedures used by previous researchers. Therefore, three multivariate statistics were employed in this study to more accurately determine whether a significant relationship existed between personality and leisure preferences, and if so, to what degree these free time choices could be predicted from a knowledge of personality characteristics.

The theoretical framework for this study was provided by Murray's (1938) Need-Press Theory. Murray postulated that each individual has certain needs around which his or her personality is organized. It was suggested that many of the needs Murray believes to underlie human functioning in general could be directly applicable to leisure activity preferences. It was assumed that an individual selects specific leisure activities on the basis of their ability to satisfy certain needs.

Procedures

Subjects for this study included male and female high school students in grades 10-12. The 139 subjects who participated were drawn from randomly selected classes in social science, science, and physical education.

The Leisure Activity Questionnaire, representing a modified version of Witt's (1971) questionnaire, was used to collect data on the

preferences of students for 32 leisure activities. The Personality Research Form, based on Murray's Need-Press Theory, provided scores which measured 14 personality needs relevant to a wide variety of human functioning.

The data were analyzed using three multivariate statistical procedures: canonical analysis, factor analysis and discriminant analysis. Canonical analysis was used to determine the degree of confidence which could be placed in the overall hypothesis that personality variables and leisure activity preferences were significantly related. Factor analysis provided additional insight into this relationship through the correlation of factor scores with selected personality variables. In addition, factor analysis was employed to extract the minimum number of dimensions necessary to account for most of the variance in the reported leisure activities of the study's subjects. The extracted factors were compared to those identified earlier by Witt (1971). Discriminant analysis also used the derived factors in determining the probability of a subject's classification into one of these leisure activity dimensions based on his personality characteristics.

Conclusions

1. Selected variables of personality were significantly related to leisure activity preferences. These results lend support to the

notion that different leisure activities appear to attract individuals with different needs.

2. Four factors or independent dimensions of leisure activity were extracted from the data. Three of the factors, Outdoor-Nature, Sports, and Aesthetic-Sophisticate, demonstrated a marked similarity to factors found in an earlier investigation. The fourth factor, labeled Leisure Detachment, displayed no resemblance to previous research findings.
3. A correlation of leisure activity factor scores with the 14 PRF variables produced several statistically significant relationships. These significant correlations provided substantial empirical support for the four factor interpretations.
4. The use of selected variables of personality substantially increased the probability of correctly predicting leisure activity preferences.

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Activities and Personality

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MULTIVARIATE RELATIONSHIPS BETWEEN LEISURE ACTIVITIES AND PERSONALITY

INTRODUCTION

Research with respect to the effect of personality on leisure behavior is almost non-existent. Despite the fact that personality characteristics have been shown to dramatically affect a wide range of human functioning, most empirical research attempting to explain man's use of leisure has persistently focused on the relationship between the use of leisure and such demographic variables as income, sex, age and occupation. While this emphasis on demographic variables has provided valuable information to recreation planners and educators, it has failed to provide a comprehensive explanation of leisure behavior. For example, the Outdoor Recreation Resources Review Commission's multivariate analysis of the traditional variables of income, age, sex, occupation, religion and education found the cumulative effect of all these variables accounted for only 30 percent of the variance in the measurement of outdoor recreation activity (Mueller and Gurin, 1962, p. 27).

The inability of social indices to provide a complete explanation of leisure activity prompted some researchers to explore the psychological dimensions of leisure, specifically, the effect of personality variables on free time activity preferences. Evidence for the existence of intrinsic components of personality which remain stable in the

face of changing environmental conditions has been provided by a number of researchers (Klein, Barr, and Wolitzky, 1967). Most important is the finding by these personologists¹ that it is unrealistic to attempt to fully understand behavior without taking into account these dispositional characteristics.

Robert Havighurst (1957) was one of the first to recognize the vital role that personality could play in affecting leisure behavior. It was his contention that the significance of leisure activities is more closely related to personality needs than to variables of income, age, sex and social class.

At present, some empirical evidence, though not conclusive, has been provided to support Havighurst's claim. Of all the articles reviewed, the research of Farina (1965) and Ibrahim (1969) represents the only two statistical attempts to demonstrate that factors of personality affect leisure activity choices. Some statistically significant correlates were found to exist between personality and leisure interests, but the findings were for the most part inconclusive and inconsistent. It is plausible to attribute such findings to the nebulous nature of personality and leisure behavior, or to the limitations inherent in the devices measuring these attributes. However, it is suggested here that a primary reason for the less than conclusive

¹Henry Murray (1938) first used this term to describe someone who is an expert in the study and understanding of personality.

findings can be attributed to the limited statistical procedures used by the researchers. Both Farina and Ibrahim relied on univariate analysis procedures, and as Bishop (1966) and Cooley and Lohmes (1962) suggest, these methods are markedly inferior to multivariate techniques for exposing the important and complex relationships that may exist between variables. The univariate methods used by Farina and Ibrahim required them to correlate separately each personality variable with each of the recreation activities. The simplicity of these methods, while possibly expediting the interpretation of the findings, in all likelihood forfeited much valuable information. The fragmented facts and bits of information produced failed to take into account the degree of interrelationship that existed between the personality variables and the leisure activities by themselves. The significance of this restriction is clearly illustrated in an example provided by Bishop (1966, p. 180):

Suppose that we correlated, for example, years of education and frequency of going hunting; we could not tell directly how much of this correlation is specific to hunting and how much it is due to some more generic interest of the individual of which hunting is a specific indicator. Similarly, we could not tell how much of this relationship is specific to amount of education and how much is due to something that is common to education, income, age, and so on.

Canonical analysis, a multivariate technique used in this study, overcomes this limitation by indicating how two sets of variables are related to each other and how much the variables within each set

contribute to the relationship. Because canonical analysis combines information from all of the variables, thereby increasing both the probability of finding a significant correlation and the accuracy of predictions, it was considered the most appropriate method for analyzing the complex nature of leisure behavior. In addition, discriminant analysis and factor analysis, other multivariate methods, were adopted here as the most appropriate procedures for examining and predicting respondents' leisure activity preferences.

In the absence of strong relationships between demographic variables and leisure activity preferences (which may be attributed to the fact that these social variables constitute only one source of the variation in leisure activities), and on the basis of what has been suggested by Havighurst and others, it is an assumption of this study that personality variables can contribute significantly to a more comprehensive understanding of leisure behavior. Therefore, this study is an attempt to assess the relationship between leisure activity preferences and variables of personality utilizing multivariate statistical procedures. This relationship will provide the basis for an attempt to predict leisure activity preferences based on individual personality characteristics.

Purpose of the Study

The primary purpose of this study was to determine the degree of

relationship that existed between leisure activity preferences and certain personality variables by using multivariate statistical procedures. Concurrently, the researcher attempted to (1) identify those variables which contributed most significantly to the relationship between leisure activity preferences and personality, and (2) to determine to what degree individual leisure activity preferences can be predicted from scores derived from a personality assessment inventory. An additional purpose was to determine if the leisure activity factors extracted from this study's subjects were equivalent to those leisure activity factors identified in previous research (Witt, 1971).

Importance of the Study

A vast amount of research has been compiled on the human personality. The notion that within man there exists a set of complex and enduring dispositions which motivates his behavior is firmly established. These underlying "traits" or "needs" of personality have been found to influence many aspects of human functioning, such as child-rearing practices, humor and occupational preferences. Rarely, however, has there been an attempt to assess the effect of personality variables on the use of leisure. To date, most efforts to explain discretionary behavior have focused on demographic variables such as occupation, sex, age and income. These studies have

been able to provide only a very limited explanation of leisure behavior.

While environmental factors and social situations can influence free time activity choices, it is also important to understand what the individual "brings with him," in terms of his own personality traits, to each of these situations. It is conceivable that the results of this investigation will allow researchers to more objectively evaluate Robert Havighurst's (1957) claim that "the significance of leisure activities is more closely related to intrinsic variables of personality than to variables of income, age, sex and social class" (p. 156). Knowledge of the relationship between variables of personality and free time activity preferences should provide the recreation planner and educator with a better understanding of what free time activities mean to the individual. This knowledge will serve to promote the understanding that a given activity may meet the needs of one person and not another, and that each person will have his own unique set of needs to be fulfilled during leisure.

The vast amount of free time that has become available to this increasingly affluent society has been widely documented. Will this abundance of non-work time open new vistas for individual development, or will it, as Reisman cautions, "prove more stultifying than satisfying"? Whether this creation of man and technology becomes a blessing or a burden is largely dependent upon our ability to visualize its true potential for individual growth. In large part, this

understanding is based on the ability to explain what drives or needs underlie participation in free time activities. While the scope of this research is confined to assessing the relationship between leisure and personality, it may provide a foundation for further studies exploring the cause and effects of leisure behavior. For example, do personality differences result as an "effect" of participation in certain leisure activities? Or, are the differences between the leisure activity preferences of individuals "caused" by intrinsic factors of personality?

Finally, it is possible that this investigation can contribute to a more comprehensive understanding of leisure behavior by demonstrating the degree to which personality variables influence variation in leisure activity.

Research Hypotheses

The following hypotheses are tested in this study:

1. No significant relationships exist between leisure activity preferences and selected variables of personality.
2. No factors or independent dimensions of leisure activities can be extracted from the reported leisure activity preferences of the sample subjects.
3. No significant differences exist between the discriminant means of each of the leisure activity factors.

Limitations of the Study

The limitations of the study were:

1. Inferences made from the results will be valid to the extent that the theoretical framework is substantiated. The assumption made in this study, that a person's actions are motivated by underlying needs which exist independent of situational variations, is challenged by those who subscribe to the notion that environmental variations rather than individual differences have the most powerful impact on behavior.
2. The data gathered from the subjects are accurate insofar as the Personality Research Form is a valid instrument for measuring various dimensions of personality.
3. Results derived can be attributed only to students attending Corvallis High School during the 1972-73 school year. Thus, inferences must be confined to this sample population and not generalized to other communities.

Definition of Terms

Leisure

Appreciable differences exist between several widely held meanings of leisure. Definitions range from the classical "purist" conception of leisure as a self-rewarding activity engaged in for its

own sake, to the more contemporary view of leisure as a segment of time when one is free to do as he chooses. This study subscribes to the latter, which is a more quantitative "free time conceptualization." Leisure is defined herein as time when alternative activity choices exist relatively free from obligation. The essence of this view is that of discretion ("choosiness") over the use of time. The terms free time and discretionary time are therefore used interchangeably with the word leisure.

The operational definition of leisure was provided by the Leisure Activity Questionnaire (LAQ). Used to assess leisure activity preferences, the LAQ conforms to the above conceptualization of leisure. The questionnaire is composed of a wide variety of "free time" activities segregated into seasonal and year-round activities. The respondent was asked to indicate how frequently he or she participated in these activities exclusive of school or familial obligations.

Recreation

Recreation is defined as a form of activity that occurs during leisure. The psychological implications of recreation participation are crucial to truly understanding its meaning for the participant. The real value of the recreation act or experience is derived from its ability to satisfy certain underlying needs which exist within the individual. Recreation activity in this context is seen as a means to

an end; it is purposeful, goal-oriented behavior. Empirical evidence (see theory section) supports the notion that each individual has certain needs or dominant values around which his personality is organized. The selection of specific recreation activities, it is assumed, is prompted by the desire to satisfy these personal needs. Painting, then, may become a free time medium for individual self-expression, recognition or the satisfaction of a host of other needs. The specific need or combination of needs motivating the artist, or any other individual, is dependent upon the individual's own unique personality. Thus, recreation is conceived of as a form of activity occurring during leisure, whose primary value is derived from its ability to satisfy needs which exist within the participant.

CHAPTER II

REVIEW OF RELATED LITERATURE

Relationship Between Demographic Variables and Leisure Activity Preferences

Most empirical research with respect to leisure has focused on the relationship between the use of free time and such demographic variables as age, income, occupation and sex.

The relationship between occupational level and/or status and participation in leisure activities has been investigated by a number of researchers. For example, McDowell in his 1967 study concluded that significant differences exist between occupational groups and their selection of recreation activities. Professional men were found to participate to a larger extent in outdoor and cultural activities than any of the other occupational groups studied. Morris et al. (1972), in studying the free time participation patterns of occupational groups in Laramie, Wyoming, discovered that the higher the occupational level the more probable it was that an individual participated in public recreation services. Clark (1956), in attempting to delineate the nature of the relationship between levels of occupational prestige and leisure behavior, found significant differences between occupational social status and leisure activity choices. Members of one occupational prestige level were more likely to involve themselves in certain

kinds of activities than others. For example, watching television, fishing, playing poker, attending drive-in movies, and spending time in a tavern were activities common to persons in the lowest occupational prestige level. Attending concerts, playing bridge, reading books and working in the flower garden were found to be common to those of the highest occupational status. In a similar study, Burdge (1969) used occupational prestige to explore differences in the use of free time. The results indicated that those occupying the highest occupational prestige levels were the most active in all major forms of recreational pursuit.

Income and its association with leisure behavior is another variable which has received much attention. Mueller and Gurin (1962), using multivariate analysis, tested the effect of income and a number of other socioeconomic variables on outdoor recreation participation. They discovered that for most activities participation increased as income increased, except for a slight decline in groups having more than \$10,000 in annual income. Subsequent studies have substantiated the converse relationship between income and leisure activity participation (King, 1968; Burch and Wegner, 1967). Implicit in their findings is the notion that high income groups have a disproportionately high representation in the use of recreation areas and facilities.

A number of researchers have investigated the relationship between age and man's leisure behavior patterns. Bayley (1955)

discovered that as persons grew older, they preferred fewer recreation activities, and felt indifferent towards an even larger number. Only those activities of a sedentary nature which involved a few people were found to increase in popularity with advancing age. Similarly, Havighurst (1957) found an inverse trend existed between age and recreation interests, with the 50 to 60 and 60 to 70 age groups progressively decreasing their range of leisure interests. Donald Campbell's (1969) findings support the previous conclusions. He found that the percentage of participation in recreation activities decreased with advancing age.

It is apparent from the preceding studies that participation in leisure activities varies significantly among persons who possess different demographic characteristics. For example, this brief review has shown that the occupational groups highest in prestige, such as professional workers, are more likely to be involved in a greater number and variety of free time activities; that participation in recreation activities tends to increase as income rises; and that age is adversely related to volume of leisure activity involvement.

While the literature abounds with studies focusing on the "who" characteristics of groups and individuals participating in recreation, all these data have failed to provide an adequate explanation of free time behavior. Analysis of a national survey of outdoor recreation participants indicates that the traditional variables of income, sex,

age and occupation offer only a partial explanation of the complex components affecting leisure behavior (Outdoor Recreation Resources Review Commission, Report #21, p. 27). A multivariate analysis procedure, multiple classification analysis, found that while significant associations existed between level of outdoor recreation activity and such factors as sex, age, income, place of residence, race, religion and education of head of household, the cumulative effect of all these variables accounted for only 30 percent of the variance in the measurement of outdoor recreation activity. This finding led the authors of the study to conclude that "factors other than socioeconomic characteristics are major determinants of outdoor recreational activity" (p. 27).

The fact that so many of the social indices demonstrate a spurious relationship with leisure behavior detracts significantly from their explanatory ability. For example, that portion of an outdoor recreation activity explained by income is often difficult to separate from other social variables such as education and occupation. It may be that, as Kraus (1971, p. 295) speculates:

. . . it is not so much the influence of occupation (or education) upon the leisure pattern of the individual as that the individual has a set of personality traits which in effect propel him both into the choice of a profession and also into the selection of leisure patterns and recreational interests.

The suggestion that the apparent relationship between social variables

and leisure activities stems not from a real connection between them, but more from the fact that each of them is linked to a common underlying dimension such as personality, is an important contribution to the present study.

The ability of some of the social indices by themselves to meaningfully discriminate between activity preferences is also being challenged. For example, Meyers (1970) has demonstrated that income is of little use in explaining leisure behavior for families who make more than \$10,000 per year.

Burch (1969, p. 125), in his discussion of the inadequacies of social variables, states that:

. . . the consistently poor fit between standard social variables and leisure behavior suggests that just the facts, even when manipulated by sophisticated statistical techniques, are inadequate for planner and researcher alike. These data only permit us to talk of yesterday when we wish to anticipate tomorrow. To get any value from these facts we need a set of hypotheses which permit us to account for variations in leisure behavior so that predictions of future events may be possible.

To more accurately explain and predict leisure behavior, it is apparent that researchers must look beyond the social indicators of age, sex, occupation and income. Robert Havighurst (1957) was one of the first to come to this realization in his study of the leisure behavior of middle-aged adults. It was his contention that the significance of leisure activities is more closely related to personality needs than to variables of income, age, sex and social class. To

Havighurst, participation in leisure activities was essentially an extension of one's personality--". . . it is a response to personality needs, being one of the ways in which people express themselves" (1957, p. 161). An important objective of this study is to determine if there is any validity to Havighurst's claim.

The Relationship Between Variables of
Personality and Leisure
Activity Preferences

Most of what little research has been done with respect to the psychological aspects of leisure participation has employed a non-statistical, exploratory or formulative research design. For the most part, these studies have concentrated on the development of hypotheses rather than on the precise testing of these hypotheses. Only a handful of studies out of the hundreds reviewed applied a descriptive or experimental research design to assessing the relationship of personality characteristics to leisure behavior.

Burch (1969), offering some fresh, new theoretical orientations, suggested that the "social circles" which surround the individual may be the primary determinants of variations in leisure preferences. In his view, the individual interacting with factors in his environment such as his familial milieu and friendship settings predispose the individual toward certain leisure pursuits. Of interest is Burch's

suggestion that parental child rearing practices seem to be a major factor in influencing recreational choice.

Driver and Tocher (1970) focus on the internal aspects or motives underlying leisure behavior in their behavioral interpretation of recreation. The authors accept the notion that most human behavior is goal-directed and that a person's responses are instrumental in obtaining some need satisfactions. Of particular importance to this study is their contention that humans are motivated to recreate. Driver and Tocher postulate that there are psychological and physiological forces, or motives, which cause individuals to prefer certain recreation experiences over others. Implied in their writings is the notion that motives to recreate can be identified.

While both Burch and Driver and Tocher do not attempt to offer statistical evidence to substantiate their positions, they do identify some important socio-psychological dimensions which would seem to warrant future investigation.

Neulinger has made the most sustained and comprehensive attempt to understand the more subjective aspects of leisure behavior (Neulinger and Breit, 1969; Neulinger, 1971; Neulinger and Breit, 1971; Neulinger and Raps, 1972). Neulinger and his associates' primary concern has been the investigation of attitudes and beliefs toward leisure.

Neulinger expressed the opinion that "there is little doubt that

leisure attitudes are closely linked to the core of personality" (Neulinger and Breit, 1969, p. 256). To examine this relationship between personality, free time and attitudes toward leisure, Neulinger and Breit constructed an attitude assessment instrument termed "A Study of Leisure" (1969). This measuring device allowed them to identify five independent factors which best characterized a person's attitude toward leisure. The five factors were labeled: (1) affinity for leisure, (2) amount of work versus vacation desired, (3) amount of perceived leisure, (4) society's role in leisure planning, and (5) self-definition through leisure and work.

In a subsequent study by Neulinger and Raps (1972), these five leisure attitude dimensions were used to investigate and compare the attitudes of an intellectual elite, Mensa, with a norm group. Within the same study, the researchers also related the choice of "free time activities" of each group to their attitudes toward leisure. This aspect of the investigation was of particular importance to this study because each of the activity preferences was assumed to represent one of Murray's (1938) "needs-press" variables (Table I). Subjects were asked to rank nine paragraphs in order of preference. Each paragraph described one of Murray's personality needs. It is important to recognize that the researchers assumed that each description of a free time activity "potentially" fulfilled one of an individual's personality needs. Implied in this assumption was the

Table I. Mean Ranks of the Need-Press of Nine Free Time Activities.

Need-Press variables	Mensa	Norm	t
<u>Understanding:</u> This activity involves reflection, thinking, analyzing and asking questions. It involves seeking scientific truth and an understanding of life.	3.8	4.7	5.13 ^b
<u>Sentience:</u> This activity provides for the enjoyment of aesthetic feelings and of sensuous impressions. It may involve the enjoyment of one or more of the arts.	4.0	4.6	2.86 ^a
<u>Autonomy:</u> This activity allows you to do as you please regardless of rules or conventions. It provides for adventure, change and independence.	4.5	4.9	1.85
<u>Achievement:</u> This activity enables you to tackle a difficult task and to achieve high standards. It offers recognition for your accomplishments	4.6	4.8	1.08
<u>Sex:</u> This activity involves forming and furthering sexual relationships. It involves the enjoyment of feelings of love. It provides the opportunity for attracting others and flirting.	5.1	5.4	1.62
<u>Affiliation:</u> This activity gives you a chance to be with others and meet new people. It provides the opportunity for cooperation with others and engaging with them in common activities.	5.3	4.3	5.74 ^b
<u>Order:</u> This activity gives you a chance to organize and arrange things. It demands precision and neatness.	5.6	5.8	1.09

(Continued on next page)

Table I. (Continued)

Need-Press variables	Mensa	Norm	t
<u>Nurturance:</u> This activity gives you an opportunity to help others who are in need and to protect and support them. It may involve being with children or taking care of animals.	6.1	5.1	5.79 ^b
<u>Activity:</u> This activity gives you a chance to be "on the go." It relieves the feelings of listlessness and provides for action. It keeps your mind off things because it requires your full attention.	6.1	5.4	3.42 ^b

^a
p < .01

^b
p < .001

idea that expressed activity preferences represent the relative importance of needs existing within persons.

A comparison of the attitudes demonstrated toward leisure by the two groups showed some significant differences. The Mensa members displayed a significantly higher "affinity for leisure" score and a significantly lower score on "work versus vacation desired."

In a separate analysis, the differences between the free time activity choices of the two groups were examined (Table I). It was shown that Mensa members ranked activities involving understanding (reflection and thinking) and sentience (enjoyment of aesthetic feelings and sensuous impressions) highest. Nurturance (need to help others) and activity (need to be "on the go") were rated the lowest. In contrast, the most preferred activity of the norm group was that involving affiliation, or the need to be with others. The norm group ranked sentience and nurturance activities significantly lower than the Mensa group.

Next, the researchers investigated the relationship between the groups' attitudes toward leisure and their free time activity choices (e. g., expressions of personality needs). Strikingly similar leisure preferences were found in both groups (Table II). While inspection of Table II shows the correlations to be quite small, the investigators concluded:

. . . when viewing the total pattern of relationships it becomes evident that, but for minor exceptions, these

Table II. The Relationship of Press Variables to Leisure Attitude Dimensions in the Mensa Group (N = 343) and the Norm Group (N = 335) (Correlation Coefficients).

Press Variables	Leisure Attitude Dimensions				
	Affinity for leisure	Society's role in leisure planning	Self-definition through leisure or work	Amount of perceived leisure	Amount of work or vacation desired
	I	II	III	IV	V
<u>Understanding</u>					
Mensa	.10	.01	.08	-.03	-.10 ^a
Norm	.05	.07	.01	.00	-.12 ^a
<u>Sentience</u>					
Mensa	.11 ^a	.05	.21 ^b	-.01	-.15 ^a
Norm	.15 ^b	.06	.09	.09	-.17 ^b
<u>Autonomy</u>					
Mensa	.25 ^b	-.01	.19 ^b	-.07	-.24 ^b
Norm	.23 ^b	-.12 ^a	.02	.01	-.13 ^b
<u>Achievement</u>					
Mensa	-.18 ^b	-.02	-.19 ^b	.04	.14 ^a
Norm	-.14 ^a	.13 ^a	-.15 ^b	-.05	.19 ^b
<u>Sex</u>					
Mensa	.10	-.13 ^a	.10	.06	-.17 ^b
Norm	.16 ^b	-.13 ^a	.05	.15 ^b	-.17 ^b
<u>Affiliation</u>					
Mensa	-.15 ^b	.08	-.20 ^b	.03	.17 ^b
Norm	-.09	.08	.04	-.08	-.03
<u>Order</u>					
Mensa	-.01	.04	-.03	-.09	.12 ^a
Norm	-.15 ^b	.06	-.05	-.11 ^a	.23 ^b
<u>Nurturance</u>					
Mensa	-.16 ^b	.04	-.06	-.02	.06
Norm	-.12 ^a	.02	.06	-.08	.08
<u>Activity</u>					
Mensa	-.09	-.03	-.13 ^a	.09	.16 ^b
	-.13 ^a	-.12 ^a	-.05	.03	.13 ^a

^a $p < .05$

^b $p < .01$

relationships transcend differences between the two groups and thus represent relatively stable relationships between personality variables and attitude dimensions. For example, the person who expresses a higher affinity for leisure (Factor I) tends to seek free time activities which allow for sentient and autonomous experiences, avoiding achievement oriented or nurturing types of activities, regardless of which group he is in (Neulinger and Raps, 1972, p. 202).

The preceding research demonstrated that personality dynamics can be useful in explaining and differentiating between expressed attitudes toward leisure. The somewhat embryonic view Neulinger's research provides is that persons with an affinity for leisure are those who are not too conforming with an inclination toward sensory pleasures and feelings.

Rather than focusing on the relationship between leisure attitudes and dynamics of personality, and assuming that a relationship exists between activity preferences and personality needs, Farina (1965) and Ibrahim (1969) investigated the question of whether in fact this assumed relationship does exist. Both researchers related specific choices of individuals (e.g., tennis, music, golf, etc.) to scores from personality assessment instruments to explain just how much of these free time activity preferences are influenced by measured personality variables.

Farina (1965) was the first researcher to offer some empirical evidence to support the notion that personality influences free time choice. He tested the following hypotheses:

1. The pattern of choice of leisure activity by domains is associated with patterns of personality as measured by scores on 30 scales.
2. High frequency of choice of a particular domain of free time activity is associated with differences in scores on personality scales as measured.

The Likes and Interests Test, which purports to measure 30 different personality factors was used as the measuring instrument. Some of the factor scales included were seclusion, introspection, lack of self-control and sociability. Free time activities were categorized into six domains of physical activity, social or interpersonal activity, rest and relaxation, and self-improvement. Only five of the 30 personality factors measured were associated with significant differences between free time activity domains. Farina states that these findings suggest that the total personality is not involved in the choice of free time activity, but specific factors may govern the choice of domain of free time activity.

It is more likely, however, that the paucity of significant associations may be attributed to a number of methodological deficiencies. The homogeneity of the sample population, for example, impeded the discovery of many significant relationships. The subjects used were all volunteer members of the Canadian Air Force. It is assumed that a good deal of similarity in personality characteristics would exist in

such a self-selecting group. As Farina himself asserts, "If most people in both samples have similar free time patterns and similar personality profiles, no meaningful correlations between free time use and personality traits can be estimated."

The imprecision of the instrument used to collect data on free time activity preferences also may have contributed to the small number of significant relationships found. The respondents' misinterpretation of the six domains of free time activity resulted in the inconsistent reporting of their use of free time.

In spite of the apparent methodological inadequacies, the study does provide some, if not conclusive, evidence for the existence of a relationship between variables of personality and free time activity patterns. Hilmi Ibrahim (1969) conducted a statistical study of a relationship between traits of personality as measured by the California Psychological Inventory (CPI) and recreation activity preferences (i. e., physical, social, aesthetic and communicative). Analysis of variance revealed that significant differences existed in 6 of the 18 traits among males and in 8 traits among females. According to Ibrahim's results, those individuals most recreationally inclined were found to be more confident, versatile, outgoing, enthusiastic, outspoken and energetic than those persons less recreationally inclined. Among the remaining traits measuring socialization, achievement potential, intellectual efficiency and interest, statistical

treatment revealed that differences were too scattered to demonstrate any real significance. Due to the inconclusive nature of his findings, Ibrahim concluded that additional research was necessary before he could ardently support the notion that personalities of those inclined toward sport, social activities, aesthetics or hobbies would vary significantly.

Both Farina and Ibrahim relied on univariate statistical methods. It may be possible to attribute the lack of conclusive findings to their dependence on limited procedures. Univariate forms of analysis do not take into account the complex interrelationship that may exist between numbers of variables. The failure of both researchers to analyze the large number of personality variables in combination, as systems, may have significantly detracted from their ability to make meaningful interpretations.

Of special importance to the conduct of this study was the research effort of Witt (1971), who investigated the question of whether or not stable dimensions of leisure activities exist that can be used to explain individual patterns of leisure behavior. Witt then factor analyzed the reported leisure activities of high school students in three mid-western cities. It was found that essentially the same four factors were present in each sample. The four factors extracted accounted for over 80 percent of the common factor variance. Factor S had relatively high loadings for playing football, baseball, softball,

basketball, golf, and attending sports events. These activities generally emphasize participation as opposed to observation. The list includes the full range of popular, seasonal sports activities. Thus, factor S was labeled Sports.

Boating, swimming (outdoors), camping, fishing, and hiking all had high loadings on factor ON. As with factor S, all ON activities imply an active approach to the use of free time. However, instead of activity being related to sports, the high loadings pertain to "outdoor, fresh-air pursuits undertaken in natural environments" (Witt, 1971, p. 217). In addition, the activities appear to cover the whole range of "ruggedness," including camping out and picnicking on the same factor. Outdoor-Nature was the label given to factor ON.

Factor AD "had relatively high loadings for visiting friends, attending parties, going dancing, listening to records, socializing with one's peers, and other activities generally associated with high-school age youth" (Witt, 1971, p. 217). Factor AD was labeled Adolescent-Social.

Attending plays-concerts-art shows-museums and organizing meetings, playing tennis, attending parties, and participating in dramatics showed relatively high loadings for factor SA. An artistic or aesthetic theme characterizes most of these activities. In addition, these activities could be considered "high brow" in that they are usually considered as being related to the sophisticated use of one's free time.

In Witt's study, factor scores for each subject were correlated with a number of demographic variables: age, social status, hours worked, etc. The correlation coefficients obtained were very small in magnitude; only the sex factor was found to be significant (Table III). These results tend to support the arguments mentioned previously with respect to the limited explanatory capacity of traditional social variables.

Table III. Correlations of Factor Scores with Selected Variables.

	S	ON	AD	SA
Age	-.10	.05	.08	.17
Social status	.06	-.03	.06	.20
Sex (F:0, M:1)	.42	.08	-.25	-.18
Allowance	-.10	-.09	-.10	.22
Own car	-.09	.02	.06	.18
Own T. V.	.02	-.05	-.09	.17
Hours work	.15	.02	.06	.05
Hours meetings or practice or lessons	.28	.05	.22	.16

Note: Social status (socio-economic class) and allowance were only measured in the Minneapolis and Glencoe samples, respectively. All other correlations in the table are means of the coefficients from the three samples. These were calculated by using z score transformations.

Theoretical Foundation

No theoretical framework could be found which relates personality variables to leisure time activity choices. However, theories

are available which can be used to explain why such a relationship might exist. In this study, the Behavioral Consistency Principle espoused most thoroughly by Prescott Lecky (1945) and Carl Rogers (1959), together with Henry Murray's motivational theory, is used as a foundation for explanation and prediction.

Prescott Lecky was one of the first psychologists to develop the idea that the normally functioning human strives for consistency in all aspects of his life. He suggested that man is motivated primarily to maintain a unified personality system in which ideas and values are organized with a high degree of consistency, an idea which is reflected in the following quote:

Behavior expresses the effort to maintain integrity and unity of organization. . . . In order to be quickly assimilated, the idea formed as a result of a new experience must be felt to be consistent with ideas already present in the system. On the other hand, ideas whose inconsistency is recognized as the personality develops must be expelled from the system. There is thus a constant assimilation of new ideas and the expulsion of old ideas throughout life (1945, p. 135).

The Consistency Principle is clearly evidenced in the writings of Self theorist Carl Rogers. Rogers believes that the enhancement and maintenance of a unified self-concept is a fundamental determinant of behavior. He points out that people will stoutly defend a unified concept of self, even to the point of self-depreciation. Rogers states that one of the best ways of preserving the unity of personality is by filtering one's experiences so that they are either

. . . (a) symbolized, perceived and organized into some relationship to the self, (b) ignored because there is no perceived relationship to the self-structure, (c) denied symbolization or given distorted symbolization because the experience is inconsistent with the structure of the self (p. 503).

In short, these theorists suggest that individuals categorize experiences on the basis of their compatibility with existing evaluations of their own personalities. Those experiences which are inconsistent with this self evaluation are rejected or disregarded; those experiences which are consistent are accepted by the person. Personality, then, is viewed as a unitary organization, with the individual's personality style reflecting a degree of unity across a number of expressive behaviors.

The Behavioral Consistency Principle can be useful in explaining the highly congruent factor loadings reported by Bishop and Witt in a preceding section. Both studies showed that there are stable dimensions of leisure activities that can be used to describe individual patterns of leisure behavior. The fact that people tend to prefer leisure activities which are similar in nature can possibly be explained by the need of man to maintain an internally consistent view of himself.

In addition, each person has certain needs or dominant values around which his personality is organized. It is through this process of being internally consistent to these needs and values that we can see overt expressions of behavioral consistencies (Hamachek, 1972).

Although the concept of need has an ubiquitous presence in

psychological literature, no other theorist has analyzed the concept so carefully and completely as has Henry Murray. Need is the central concept in Murray's theory of motivation. He describes it as:

. . . a construct which stands for a force. . . in the brain region, a force which organizes perception, apperception, intellection, conation, and action in such a way as to transform in a certain direction an existing, unsatisfying situation (1938, p. 123-124).

In his scheme, a need may be either internally or externally aroused; nevertheless, needs produce activity on the part of the individual. Murray's view of man as an extremely complex organism led him to employ a sufficiently large number of variables to explain human motivation. Following an intensive study of selected individuals, Murray arrived at a tentative list of 20 needs.

Empirical evidence to substantiate the existence of Murray's needs as motivators of behavior has been provided by a number of researchers. Stern's "Activity Index" (1953), and Jackson's "Personality Research Form" (1967), as well as Edwards' "Personal Preference Index" (1953), all utilize Murray's needs as the foundation for their item development. The careful application of psychometric theory, especially in the case of the latter two instruments, has provided strong evidence for the tangible measurability of these needs. The specific methods used by Jackson to support the empirical adequacy of Murray's needs are elaborated upon in an ensuing section. The results of these research efforts have prompted personologist

Salvatore Maddi (1972) to conclude that "There is empirical evidence that entities (needs) having the content referred to by Murray do exist in people. . . these entities are indeed primarily motivational in nature" (p. 452).

Needs are closely linked to environmental events. Just as the concept of "need" represents the significant determinants of behavior within the person, so the concept of "press" represents the effective or significant determinants of behavior in the environment (Hall and Lindsey, 1970). A press is a property or attribute of something in the environment that facilitates or impedes a person's efforts to reach a certain goal. Murray uses the term "thema" to describe the correlation of need and press. For example, when a person has a need for affiliation and someone calls him friend, this interaction is called a thema.

Murray views man's behavior as a product of related themas. Murray uses the concept of "unity-thema" to explain the behavioral unity and consistency of personality. The unity-thema is the single pattern of related needs and press that gives meaning and coherence to the largest portion of the person's behavior. A persistent striving to attain power and dominate others is an example of a unity thema.

Murray, then, sees man as set into motion by a complex set of needs. Further, he grants that when a need is aroused the individual is in a state of tension, and satisfaction of the need involves reduction

of the tension. Finally, the organism will learn to attend to objects and perform acts that it has found in the past to be associated with tension reduction. Not only does the individual learn to respond consistently in such a manner as to reduce tension and thus experience satisfaction, but he also learns to respond in such a manner as to develop tension so that it can later be reduced.

It is conceivable that many of the needs Murray employs to underlie human actions in general could be directly applicable to leisure activity preferences. In other words, an individual chooses specific leisure activities on the basis of their ability to satisfy certain needs. We can expect a person to select those activities whose inherent values are consistent with his personality style. Personality style in this instance refers to the sum total of all that one is and does, to his characteristic patterns of perceiving and responding (Hamachek, 1972). If we visualize each leisure activity as having some interpersonal quality about it, e. g. , chance to enjoy interaction, dominate or get away from, then we would expect individuals to choose activities embracing the quality which would be most appropriate for him. It is assumed that some leisure activities satisfy the needs of individuals better than others, and that the individual's own unique personality determines what is appropriate for him.

Conceptualization of Personality

The ubiquitous and nebulous nature of the term "personality" makes its precise definition extremely difficult. The existing definitions could fill a volume; in 1937 Allport, in an extensive review of the literature, identified almost 50 different definitions. To review even a portion of these complex and most often contradictory definitions would be of little value. The reader would be easily confused by the lack of consensus in personality conceptualization. Instead, a more fruitful approach would be to extract from this plethora of definitions those common elements or modal qualities which seem to be inherent in most approaches to conceptualizing personality. It is hoped that by focusing on commonalities a more general, and at the same time more vivid, viewpoint on the nature of personality will be furnished.

Despite the appreciable differences that do exist between personologists' view of man, preoccupation with the generality and consistency of the mode of behavioral functioning, whether termed a "trait, " "attitude, " or "drive, " has been a dominant concern of personality conceptions (Klein, Barr and Wolitsky, 1967). Personologists generally share the common view that a person's actions are motivated by certain underlying dynamics which remain stable in the face of changing environmental conditions. Depending on one's specific orientation, these inferred characteristics may be termed "motives, "

"traits, " "needs, " etc. Implicit in this view is the assumption that the locus of control for human behavior is internalized within the individual. Freud's conception of "instincts" as the propelling factors of behavior is a good example of the personologist's emphasis on the intrinsic nature of personality. Instincts, as seen by Freud, constitute the sum total of psychic energy available to the personality. They not only drive behavior but they also determine the direction it will take (e. g. , the sexually aroused individual is more likely to respond to erotic stimuli than to food stimuli).

Maslow's (1962) formulation of a genetically derived hierarchy of "needs" within each individual provides another example of the internal control emphasis of personality theorists. Maslow has provided us with a list of needs organized in terms of the degree to which satisfaction of each is a prerequisite to the search for satisfaction of the next. He lists physiological needs, safety needs, needs for belongingness and love, esteem needs and the need for self actualization. The needs are arranged in a prepotent hierarchical organization, so when physiological needs are satisfied, the safety needs are salient and can be attended to; when the physiological and safety needs are both satisfied, the needs for belongingness and love are salient and can be attended to, and so forth. In Maslow's scheme, these genetically endowed needs which are found in all men are the initiators of behavior.

Environmental influences are not discounted (e. g. , Freud's superego, Murray's press, etc.); in fact, for some personologists such as McCurdy (1961), the essence of personality is in the interplay of person and social environment. Even with the recognition of external factors impinging upon behavior, personologists for the most part assume that consistencies in behavior exist independent of situational variations.

In recent years, however, certain psychologists (Mischel, 1968; Peterson, 1968) have emphasized the role of situational factors and environmental contingencies while at the same time dismissing the existence of dispositional "traits" or "needs. " Mischel, in an extensive review of the literature, concluded that "with the possible exception of intelligence, highly generalized behavioral consistencies have not been demonstrated, and the concept of personality traits as broad response predispositions is thus untenable" (1968, p. 365).

Attempts such as Mischel's to explain personality away as a "will o' the wisp" seem to ignore the large body of empirically established correlates of personality scales (Craik, 1969). Some of these scale correlates will be included in an ensuing section of this study.

Moreover, they fail to take into account the recent discoveries of neurophysiologists on the role the nervous system exercises in personality development. Studies by Catril and Livingston (1963),

Eysenck (1963) and Teplov (1966) have provided strong evidence that cortical control over behavior functioning is much more pervasive than once believed. For example, Eysenck has discovered basic systems in the nervous system which apparently propel the organism toward or away from certain "situations." In other words, a particular person may be constitutionally determined to be more affected by some environmental influences than by others. As Klein, Barr and Wolitzky (1967) conclude, a "truly complete picture of the nature of personality will be revealed only by an understanding of the basic properties of neural activity" (p. 481).

Evidence for the existence of inherent and stable components of personality has been furnished by a number of studies. Thomas, Chess and Birch (1968), for example, have identified predominant temperment or behavioral patterns in the first months of life for many infants which persist relatively unchanged through childhood into adulthood. These "primary reaction patterns" stem from such relatively independent qualities as activity level, rhythmicity, adaptability, the tendency to approach or withdraw from new stimuli, quality of need, sensory threshold, distractability and length of attention span. The importance of their findings lies in the fact that certain characteristics that appear in early infancy continue to characterize the individual's behavior through later life.

Similarly, Escalona (1968), in her effort to trace the development

of individuality during the first eight months of life in normal infants, has identified recurring configurations of developmental structures appearing in infants' reactions to various kinds of stimulation. These recurring behavior "constellations" she terms stable patterns of experience (SPE). Escalona has demonstrated that these SPE's "reflect important differences in capability of managing environmental inputs at very early age levels"; some of these SPE's have exhibited a significant influence on later adaptational success or failure.

While some of these "reaction patterns" or "SPE's" might be more situationally influenced than others, they do seem to describe the existence of internal variables which have an enduring and stable organization, requiring inner conditions of arousal independent of specific situational conditions.

The preceding paragraphs provide evidence that seems to substantiate the assumption held by most personologists that highly generalized behavioral consistencies exist within man independent of situational constraints. Whether these dispositional characteristics be termed traits or needs, it is fallacious to attempt to understand behavior without taking them into account. The concept of personality is valid, and as Salvatore Maddi states, it is a concept that is "here to stay."

Summary of Reviewed Literature

A review of the literature revealed very little research pertaining to the specific problem of this study. The majority of research studies reviewed focused on the relationship between demographic variables and leisure activity preferences. Studies using variables such as age, sex, income and occupation were shown to account for only a small portion of the variation in leisure activities.

The demonstrated inadequacy of demographic variables to provide a comprehensive explanation of leisure behavior led to the investigation of the psychological domain, specifically, the ability of personality variables to explain and predict leisure activity preferences. Only a few studies have attempted to demonstrate that factors of personality influence free time activity choices. These studies have provided incomplete and inconclusive findings. It was suggested that limitations inherent in the design of these studies, as well as a reliance on univariate statistical procedures, contributed to the inconclusive results.

The theories of Prescott Lecky, Carl Rogers and Henry Murray were integrated to provide the theoretical framework for this research. Lecky and Rogers viewed man as a unitary organization whose individual personality reflects a degree of consistency across a number of expressive behaviors. It was suggested that the tendency

for people to prefer leisure activities which are similar in nature, can be explained by the need of man to maintain an internal consistency. In addition, Murray postulated that each man has certain needs or dominant values around which his personality is organized. It is through the process of being internally consistent to these needs that overt expressions of behavioral consistencies are manifested. It was assumed that many of the needs Murray employs to underlie human actions in general could be directly applicable to leisure activity preferences. Some free time activities satisfy the needs of individuals better than others; the individual's own unique personality determines what is most appropriate for him.

Finally, a review of the literature related to personality provided evidence for the existence of inherent and stable components of personality. Internal dispositional traits or needs were shown to motivate a person's actions independent of environmental or situational contingencies.

CHAPTER III

METHODOLOGY AND PROCEDURES

The purpose of this chapter is to describe the location of the study, the sample selection method and the procedures utilized to collect and analyze the data.

Locale of the Study

Corvallis, Oregon is located in the heart of the agriculturally rich Willamette Valley. The population numbers 36,762 (January, 1972), including the 15,532 students attending Oregon State University. This university, a land and sea grant institution, is the city's primary industry. The median family income in Corvallis was \$11,602 in 1970, ranking second highest in the state.

Corvallis High School, grades 10-12, is the oldest of two senior high schools in the city. The student body numbered 966 during the spring semester of 1973, including 311 (32 percent) sophomores, 346 (35.8 percent) juniors and 312 (32.2 percent) seniors.

Recreation opportunities are abundant and easily accessible to Corvallis residents. The city itself provides a well-developed park system which includes 75-acre Avery Park, an outdoor swimming pool, more than 20 tennis courts, two bowling alleys, a public nine-hole golf course at the city's edge, an 18-hole private club, and a

YMCA. The Willamette and Mary's Rivers, which bound Corvallis on the east and west, offer ample opportunities to boating and fishing enthusiasts. The Oregon coast and the Cascade Mountains, both within an hour's drive from the city, provide a great diversity of outdoor recreation opportunities, ranging from surf fishing to mountain climbing.

Subjects

The subjects in this study were selected from grades 10-12 at Corvallis Senior High School. From a total enrollment of 966, 139 (73 males and 66 females), or 14.4 percent of the student body participated in the study. The subjects were drawn from randomly selected classes in the social science, science and physical education curricula. These classes were specifically selected for inclusion in this study because they are required of all students and assignment to them is generally made on a random basis.

The subject breakdown by class was as follows: 41 (29.5 percent) sophomores, 53 (38.1 percent) juniors, and 45 (32.4 percent) seniors.

Administration of Test Instruments

The Personality Research Form and the Leisure Activity Questionnaire were administered during the same session, with the

LAQ being administered first. Each subject received a manila envelope containing: (1) a cover letter including an explanation of the purpose of the project and a set of instructions for completing the test materials (Appendix A), (2) one copy of the Leisure Activity Questionnaire (Appendix B), (3) one copy of the Personality Research Form test booklet and answer sheet, and (4) one lead pencil.

The test materials were administered during a double class session, allowing the respondents 90 minutes to complete the materials.

Test Instruments

Leisure Activity Questionnaire

A modified version of Witt's (1971) questionnaire was used to collect data on the leisure activity preferences of high school students (Appendix B). The instrument included questions which asked the respondent to indicate how frequently he or she participated in a variety of recreation activities. Thirty-two activities were segregated into two groups, seasonal and year-round. Depending on how the activity was classified, the respondent checked how many days he participated in the activity "within the last 30 days" or "during the last season for that activity." The response format consisted of a six category scale. The range of responses on the year-round activities

ran from "none" to "over 15," and from "none" to "over 30" on the seasonal activities. Of the 32 activities included on the Leisure Activity Questionnaire (LAQ), 26 were common to those used on Witt's questionnaire. The additional six activities were included to account for popular northwest recreational opportunities available to residents of Corvallis (e. g., cross-country skiing, and rock and mountain climbing). The activities listed on the Leisure Activity Questionnaire were as follows:

1. Watched educational television
2. Played games like cards, monopoly
3. Did some painting or craft activity
4. Listened to records
5. Read a book for pleasure
6. Played a musical instrument
7. Visited a friend's home
8. Went to a party with friends
9. Attended some sports event
10. Went to a movie
11. Participated in some dramatics activity
12. Attended club and organization meetings
13. Went bowling
14. Went swimming (indoors)
15. Played chess
16. Worked on a car
17. Played tennis
18. Played basketball
19. Played softball
20. Played golf
21. Played football
22. Camped out over night
23. Went hiking or backpacking
24. Went hunting
25. Went fishing
26. Went rock or mountain climbing
27. Went snow skiing
28. Went cross-country skiing
29. Went boating or canoeing

- 30. Went bicycling for pleasure
- 31. Went on picnics
- 32. Went swimming (outdoors)

Personality Research Form

The Personality Research Form (PRF) developed by Donald N. Jackson is one of the first personality assessment instruments which makes use of the modern digital computer to develop more sophisticated scales for personality measurement.

The need theory formulated by Henry Murray and his associates at Harvard Psychological Clinic serves as the theoretical foundation for this multidimensional personality inventory.

The PRF is presently available in four formats. Of the 22 scales developed, those judged to be the "most important or relevant to a wide variety of human functioning" (Jackson, 1967) have been included in the standard shorter forms (Forms A and B). Forms A and B are strictly parallel and may be used interchangeably, measuring the same 15 scales, and yielding results which are very similar statistically, substantively. These forms can be combined to maximize reliability. Both Form A and B consist of a total of 15 scales (20 items per scale), of which 14 measure variables of personality and one measures the amount of response bias. The scales listed alphabetically, together with their abbreviations, are as follows:

1. Achievement	Ac
2. Affiliation	Af
3. Aggression	Ag
4. Autonomy	Au
5. Dominance	Do
6. Endurance	En
7. Exhibition	Ex
8. Harmavoidance	Ha
9. Impulsivity	Im
10. Nurturance	Nu
11. Order	Or
12. Play	Pl
13. Social Recognition	Sr
14. Understanding	Un
15. Infrequency	In

The PRF is also available in a longer form. Forms AA and BB each contain 440 items, including the same fifteen 20-item scales in Forms A and B, plus seven additional 20-item scales. The six additional variables of personality and one additional validity scale appearing on Forms AA and BB are:

1. Abasement	Ab
2. Change	Ch
3. Cognitive Structure	Cs
4. Defence	De
5. Sentience	Se
6. Succorance	Su
7. Desirability	Dy

A thorough definition of each personality variable or need is presented in Table IV. The Personality Research Form Manual (1967) indicates that Form A or B requires an average of 30 to 45 minutes for administration, and that the majority of subjects complete Form AA or Form BB in a period of 40 to 70 minutes.

Table IV. Personality Research Form Scales.

Scale	Description of High Scorer	Defining Trait Adjectives
Abasement	Shows a high degree of humility; accepts blame and criticism even when not deserved; exposes himself to situations where he is in an inferior position; tends to be self-effacing.	meek, self-accusing, self-blaming, obsequious, self-belittling, surrendering, resigned, self-critical, humble, apologizing, subservient, obedient, yielding, deferential, self-subordinating.
Achievement	Aspires to accomplish difficult tasks; maintains high standards and is willing to work toward distant goals; responds positively to competition; willing to put forth effort to attain excellence.	striving, accomplishing, capable, purposeful, attaining, industrious, achieving, aspiring, enterprising, self-improving, productive, driving, ambitious, resourceful, competitive.
Affiliation	Enjoys being with friends and people in general; accepts people readily; makes efforts to win friendships and maintain associations with people.	neighborly, loyal, warm, amicable, good natured, friendly, companionable, genial, affable, cooperative, gregarious, hospitable, sociable, affiliative, good-willed.
Aggression	Enjoys combat and argument; easily annoyed; sometimes willing to hurt people to get his way; may seek to "get even" with people whom he perceives as having harmed him.	aggressive, quarrelsome, irritable, argumentative, threatening, attacking, antagonistic, pushy, hot-tempered, easily angered, hostile, revengeful, belligerent, blunt, retaliative.
Autonomy	Tries to break away from restraints, confinement, or restrictions of any kind; enjoys being unattached, free, not tied to people, places, or obligations; may be rebellious when faced with restraints.	unmanageable, free, self-reliant, independent, autonomous, rebellious, unconstrained, individualistic, ungovernable, self-determined, non-conforming, uncompliant, undominated, resistant, lone-wolf.
Change	Likes new and different experiences; dislikes routine and avoids it; may readily change opinions or values in different circumstances; adapts readily to changes in environment.	inconsistent, fickle, flexible, unpredictable, wavering, mutable, adaptable, changeable, irregular, variable, capricious, innovative, flightly, vacillating, inconstant.
Cognitive Structure	Does not like ambiguity or uncertainty in information; wants all questions answered completely; desires to make decisions based upon definite knowledge, rather than upon guesses or probabilities.	precise, exacting, definite, seeks certainty, meticulous, perfectionistic, clarifying, explicit, accurate, rigorous, literal, avoids ambiguity, defining, rigid, needs structure.

(Continued on next page)

Table IV. (Continued)

Scale	Description of High Scorer	Defining Trait Adjectives
Defendence	Readily suspects that people mean him harm or are against him; ready to defend himself at all times; takes offense easily; does not accept criticism readily.	self-protective, justifying, denying, defensive, self-condoning, suspicious, secretive, has a "chip on the shoulder," resists inquiries, protesting, wary, self-excusing, rationalizing, guarded, touchy.
Dominance	Attempts to control his environment, and to influence or direct other people; expresses opinions forcefully; enjoys the role of leader and may assume it spontaneously.	governing, controlling, commanding, domineering, influential, persuasive, forceful, ascendant, leading, directing, dominant, assertive, authoritative, powerful, supervising.
Endurance	Willing to work long hours; doesn't give up quickly on a problem; persevering, even in the face of great difficulty; patient and unrelenting in his work habits.	persistent, determined, steadfast, enduring, unfaltering, persevering, unremitting, relentless, tireless, dogged, energetic, has stamina, sturdy, zealous, durable.
Exhibition	Wants to be the center of attention; enjoys having an audience; engages in behavior which wins the notice of others; may enjoy being dramatic or witty.	colorful, entertaining, unusual, spellbinding, exhibitionistic, conspicuous, noticeable, expressive, ostentatious, immodest, demonstrative, flashy, dramatic, pretentious, showy.
Harmavoidance	Does not enjoy exciting activities, especially if danger is involved; avoids risk of bodily harm; seeks to maximize personal safety.	fearful, withdraws from danger, self-protecting, pain-avoidant, careful, cautious, seeks safety, timorous, apprehensive, precautionary, unadventurous, avoids risks, attentive to danger, stays out of harm's way, vigilant.
Impulsivity	Tends to act on the "spur of the moment" and without deliberation; gives vent readily to feelings and wishes; speaks freely; may be volatile in emotional expression.	hasty, rash, uninhibited, spontaneous, reckless, irrepres-sible, quick-thinking, mercurial, impatient, incautious, hurried, impulsive, foolhardy, excitable, impetuous.
Nurturance	Gives sympathy and comfort; assists others whenever possible, interested in caring for children, the disabled, or the infirm; offers a "helping hand" to those in need; readily performs favors for others.	sympathetic, paternal, helpful, benevolent, encouraging, caring, protective, comforting, maternal, supporting, aiding, ministering, consoling, charitable, assisting.
Order	Concerned with keeping personal effects and surroundings neat and organized; dislikes clutter, confusion, lack of organization; interested in developing methods for keeping materials methodically organized.	neat, organized, tidy, systematic, well-ordered, disciplined, prompt, consistent, orderly, clean, methodical, scheduled, planful, unvarying, deliberate.

(Continued on next page)

Table IV. (Continued)

Scale	Description of High Scorer	Defining Trait Adjectives
Play	Does many things "just for fun"; spends a good deal of time participating in games, sports, social activities, and other amusements; enjoys jokes and funny stories; maintains a light-hearted, easy-going attitude toward life.	playful, jovial, jolly, pleasure-seeking, merry, laughter-loving, joking, frivolous, prankish, sportive, mirthful, fun-loving, gleeful, care-free, blithe.
Sentience	Notices smells, sounds, sights, tastes, and the way things feel; remembers these sensations and believes that they are an important part of life; is sensitive to many forms of experience; may maintain an essentially hedonistic or aesthetic view of life.	aesthetic, enjoys physical sensations, observant, earthy, aware, notices environment, feeling, sensitive, sensuous, open to experience, perceptive, responsive, noticing, discriminating, alive to impressions.
Social Recognition	Desires to be held in high esteem by acquaintances; concerned about reputation and what other people think of him; works for the approval and recognition of others.	approval seeking, proper, well-behaved, seeks recognition, courteous, makes good impression, seeks respectability, accommodating, socially proper, seeks admiration, obliging, agreeable, socially sensitive, desirous of credit, behaves appropriately.
Succorance	Frequently seeks the sympathy, protection, love, advice, and reassurance of other people; may feel insecure or helpless without such support; confides difficulties readily to a receptive person.	trusting, ingratiating, dependent, entreating, appealing for help, seeks support, wants advice, helpless, confiding, needs protection, requesting, craves affection, pleading, help-seeking, defenseless.
Understanding	Wants to understand many areas of knowledge; values synthesis of ideas, verifiable generalization, logical thought, particularly when directed at satisfying intellectual curiosity.	inquiring, curious, analytical, exploring, intellectual, reflective, incisive, investigative, probing, logical, scrutinizing, theoretical, astute, rational, inquisitive.
Desirability	Describes self in terms judged as desirable; consciously or unconsciously, accurately or inaccurately, presents favorable picture of self in response to personality statements.	
Infrequency	Responds in implausible or pseudo-random manner, possibly due to carelessness, poor comprehension, passive non-compliance, confusion or gross deviation.	

Forms A and B were used in this study. One reason for their selection was the limited time available for test administration. Some subjects took as long as 75 to 80 minutes to complete the short form of the PRF alone. Certainly, for these subjects, the 90 minutes allocated for test administration would not have been sufficient for completion of long Forms AA and BB. In addition, five questionnaires which were returned were not completed. It is very possible that the number of incompletes would have increased dramatically had the long forms been used.

Factor analysis results and theoretical considerations suggest that the scales can be grouped into convenient clusters which more explicitly portray what the PRF measures. The solid line separates opposing scales.

A. Measures of Impulsive Expression and Control

Impulsivity

Change

Harmavoidance

Order

Cognitive Structure

B. Measures of Orientation Toward Work and Play

Achievement

Endurance

Play

C. Measures of Orientation Toward Direction from
Other People

Succorance

Autonomy

- D. Measures of Intellectual and Aesthetic Orientations
 - Understanding
 - Sentience
- E. Measures of Degree and Quality of Interpersonal Orientation
 - Affiliation
 - Nurturance
 - Exhibition
 - Social Recognition

 - Aggression
 - Defendence
- F. Measures of Degree of Ascendency
 - Dominance

 - Abasement
- G. Measures of Test-Taking Attitudes & Validity
 - Desirability
 - Infrequency

Over 3,000 items were written initially in the construction of the 22 PRF scales. The work of Murray and his associates served to orient the item writing. The author of the PRF made one important distinction between the variables defined by Murray and those included on the PRF. The distinction was made to improve the measurement process; more specifically it was felt that

Although Murray and his co-workers conceived of needs like Aggression to vary from one extreme to another, i. e. , subjects could be either high or low, or fall at some point in between, measurement was generally considered to be a case of adding responses to items keyed in only one direction. Thus, a person's Aggression score was the sum of Aggression items endorsed. It was not always clear, however, whether a low score should signify absence of a trait or the presence of its opposite (Jackson, 1967, p. 11).

For example, the traits of Deference and Dominance in many cases can appear in theoretical opposition. In some instances the situation could lead to possible confusion and to redundancy in the use of alternative concepts to define essentially the same dimension. To minimize these problems, however, the PRF scales of personality are all designed to be bipolar. In other words, half the items for each scale are written in terms of one pole of the dimension, and half in terms of the other. Thus, Dominance was considered to be a dimension at one extreme represented by the positive need to be directive, governing and controlling and at the other by the absence of traits as evidenced by the display of subservient and self-effacing behavior. A low score on the Dominance scale, then, indicates a high need for submissiveness. The bipolarity of the PRF has two important advantages: (1) it provides more explicit identification of what is being measured, and (2) it helps control for response biases like acquiescence (Jackson and Messick, 1958; Jackson, 1967). It is important that in interpreting PRF scales, one realize that low scores as well as high signify the existence of important differentiating characteristics.

The initial item pool was administered to a large sample (N = 2,000) of respondents, mostly college students. The total scale scores for each need were then correlated with all items and with a provisional Desirability scale. The Desirability scale consisted of a

large set of items scaled for desirability. Those items retained for further analysis related more highly to the scale to which they belonged than to any of the others including the desirability scale. Those items which demonstrated extreme endorsement proportions of less than 5 percent and more than 95 percent were eliminated from further consideration because of their limited information carrying capacity and unstable correlations.

For each of the surviving items, a Differential Reliability Index (DRI) was computed in an effort to maximize the reliable content-saturation variance in relation to variance associated with desirability response bias. The DRI index is defined by the formula:

$$DRI = r_{ig}^2 - r_{idy}^2$$

where

r_{ig} = the biserial correlation between an item and its own scale, and

r_{idy} = the biserial correlation between an item and desirability scale.

The last step in the item selection process was to rank the items with respect to their DRI level. The 40 items having the highest index values for each scale were chosen.

Reliability

Calculations computed by Jackson (1967) using the Kuder-Richardson Formula 20 demonstrated extremely high internal

consistency estimates (Table V). For the 20 PRF content scales median reliability is above .92; for the 14 content scales forming the shorter Forms A and B the median reliability is .93, ranging from .89 to .94.

Two studies were undertaken to determine the stability of PRF test scores. Bentler (1964) administered the PRF Form AA on two separate occasions with an interval of one week to male and female college students. The stability coefficients were all found to be acceptable with the range of .77 (Autonomy) to .90 (Harmavoidance) for the 14 content scales on Form A (Table V).

The second study of the stability of PRF scales was conducted by Jackson and Skippon (1967). In this study the parallel form reliability of Forms AA and BB were evaluated over two testing sessions separated by two weeks. The odd-even reliability of PRF scales from both forms combined ranged from .92 (Order and Dominance) to .51 (Infrequency). The low reliability score obtained for Infrequency is most likely attributable to its heterogeneous item content and skewed distributions.

Validity

In order to establish the construct validity of a given psychological assessment device it is necessary to demonstrate both convergent and discriminant validity (Campbell and Fiske, 1959). In

Table V. PRF Reliability Data.

Scale	Odd-Even Reliability Form			KR-20 Form AA	
	A+B	AA	BB	Sample 1	Sample 2
Achievement	.86	.77	.77	.73	.72
Affiliation	.88	.81	.80	.81	.76
Aggression	.87	.68	.82	.78	.76
Autonomy	.86	.78	.73	.78	.69
Dominance	.92	.86	.88	.86	.85
Endurance	.89	.82	.82	.75	.78
Exhibition	.89	.81	.82	.79	.77
Harmavoidance	.91	.82	.90	.80	.83
Impulsivity	.87	.66	.83	.72	.67
Hurturance	.85	.68	.75	.76	.73
Order	.92	.86	.84	.85	.85
Play	.80	.72	.71	.78	.69
Social Recog- nition	.91	.84	.83	.79	.80
Understanding	.85	.68	.78	.62	.66
Infrequency	.51	.33	.41	.57	.33
Abasement	.79	.66	.65	.65	.63
Change	.80	.68	.51	.66	.54
Cognitive Structure	.78	.75	.62	.80	.72
Defendence	.72	.48	.61	.68	.69
Sentience	.77	.60	.66	.65	.68
Succorance	.91	.85	.82	.80	.78
Desirability	.82	.63	.73	.59	.62

other words, if a scale is measuring what it should be measuring, it should be more highly related to other measures of the dimension than to measures of supposedly independent psychological dimensions. Researchers, using the convergent and discriminant validity model, have accumulated validity data on the PRF which is only slightly less encouraging than those on reliability.

A series of PRF validation studies have used the consensus behavior rating technique formulated by Campbell (1964). Judges using a carefully constructed nine-point rating scale rated the degree to which a certain trait was present or absent in individuals. Trait adjectives exemplifying the variables of personality on the PRF were selected to be easily understood by non-psychologists. For example, the trait "supporting" represented Nurturance, and "attention-getting" was used to obtain judgements of Exhibition. The ratings were pooled to provide an average consensus with respect to the degree to which each trait was present.

Kusyszyn (1968) employed the procedure described above in a study of eight PRF Form A scales with 94 members of five fraternities. The median validity coefficient for the entire group is .40; for the group sharing similar living quarters .47, with a range .35 (Nurturance) to .71 (Play). All correlations, with the exception of Nurturance and Aggression (.37; .05) were significant at the .01 level.

In addition to the behavior rating technique by Kusyszyn, a

supplemental self-rating scale devised by Jackson was used in a number of studies. This Trait Rating Form consisted of 600 adjectives representing each of twenty-two 30-item scales, which included the 20 PRF content scales. Subjects merely were asked to indicate the amount of each trait present in themselves. Jackson and Guthrie (1967) used this method in a study of PRF Form AA with 202 students from Pennsylvania State University. Table VI indicates that for every scale the validity coefficients are significant.

Jackson (1967), using a similar technique in a study of combined PRF Forms AA and BB with 51 California college students, obtained comparable results. The median correlation with behavior ratings by peers is .52 for the entire 20 PRF scales and .56 for the Trait Rating Form. Complete results appear in Table VI.

Evidence of congruent validity for the PRF has been provided by Seiss and Jackson (1967) in a study of the relationship between PRF scales and scales from the Strong Vocational Interest Blank (SVIB) and the California Psychological Inventory (CPI). The findings, with a few exceptions, are as would be expected. For example, the Artist category on the SVIB was found to negatively correlate with such need scales as Cognitive Structure ($r = -.23$), Order ($r = -.23$) and Affiliation ($r = -.22$), and positively correlate with the PRF scales of Understanding ($r = .30$), Autonomy ($r = .28$) and Change ($r = .27$).

Table VI. Validity Coefficients for 20 PRF Scales.

Scale	California sample		Pennsylvania sample	
	Behavior rating	Trait rating scale	Behavior rating	Self rating
Achievement	53	42	46	65
Affiliation	44	75	40	56
Aggression	52	73	36	38
Autonomy	54	60	26	44
Dominance	56	75	38	63
Endurance	52	35	27	52
Exhibition	71	51	45	43
Harmavoidance	60	40	53	58
Impulsivity	34	65	30	39
Nurturance	34	72	27	37
Order	63	68	64	76
Play	55	53	42	52
Social Recognition	47	57	20	56
Understanding	50	58	16	29
Abasement	17	19	19	33
Change	28	29	19	24
Cognitive Structure	32	35	18	30
Defendence	57	58	25	23
Sentience	10	45	32	31
Succorance	59	55	20	49

Note: Decimals have been omitted from the above Pearson product-moment correlations. For the Pennsylvania sample, the .05 and .01 levels of r are .14 and .18 respectively; for the California sample, they are .28 and .36.

A few inconsistencies appear in the relationship of the PRF to the CPI, such as the $r = -.41$ between Social Recognition and the Good Impression Scale of the CPI. However, the scales are in strong agreement in most every other comparison. For example, the Dominance factors on both the PRF and CPI correlate at $r = .78$, and the Exhibition scale on the PRF and the Sociability scale on the CPI correlate at $r = .67$. Negative correlations expectantly appear between factors such as Order and Flexibility ($r = -.61$) and Impulsivity and Self Control ($r = -.53$).

John Crites (1969), in his review of the PRF for the Journal of Counseling Psychology, summarizes the instrument as follows:

The PRF is a well-conceived and well-developed personality inventory, whose psychometric characteristics are more than adequate. It is relatively free from response bias; it measures largely independent variables; it is reliable, both structurally and temporally; and it correlates with variables it should correlate with and not with those it should not correlate with. The norms of the PRF are restricted in scope, but future research should provide the needed data (p. 182).

Statistical Treatment of the Data

The hypotheses under investigation were analyzed by utilizing three multivariate statistical procedures. These included canonical analysis, factor analysis and discriminant analysis.

Canonical Analysis

The Biomedical Canonical Analysis Program BMD06M, developed at the University of California at Los Angeles, was used to test the first null hypothesis (Dixon, 1971, p. 207).

According to Bishop (1966, p. 180), the advantage of canonical correlation is that it "tells us how two sets of variables are related to each other and how much the variables within each set contribute to the relationship." Rather than attempting to assess the relationship between the 32 leisure activities and 14 personality variables separately (providing 420 independent simple correlations), canonical analysis combines the interrelationship between these two sets of variables to maximize the correlation of the components of both sets. The canonical correlations (R_{c_i}) produced represent the maximum correlations possible between the linear functions of the two sets of variables. Several statistically significant linear combinations are possible.

Specifically, canonical analysis can be described as follows:

Canonical analysis can be thought of as an extension of multiple regression analysis to the study of both multiple dependent variables and multiple predictors. Canonical analysis finds a linear combination of predictors that is maximally correlated with another linear combination of dependent variables. The analysis yields a set of beta weights for the predictors and a set of beta weights for the dependent variables. The predictor scores of each observation can be multiplied by their corresponding beta weights and then added together; the same can be done

with the dependent variables and their weights. Thus two new scores are obtained--one a linear combination of the predictors, the other a linear combination of the dependent variables. Canonical analysis ensures that these two scores will be maximally correlated (Bishop, 1966, p. 180).

Lawley's (1959) procedures will be used to test the significance of the canonical correlation coefficients with levels of significance established at .05 and .01.

$$\chi^2 = \left[139 - k - \frac{32}{2} + \sum_{j=1}^k \left(\frac{1}{2} \right) \right] \cdot \left[-\log_e \prod_{i=k+1}^{14} (1 - r_i^2) \right]$$

where χ^2 is a χ^2 with $(14 - k) \cdot (20 - k)$ degrees of freedom.

Factor Analysis

The UCLA Biomedical Factor Analysis Program, BMD03M, was used to test the second null hypothesis (Dixon, 1971, p. 169). This factor analysis program was employed to extract the minimum number of dimensions necessary to account for most of the variance in the reported leisure activities of the study's subjects.

The program performed a principal components solution and an orthogonal rotation of the factor matrix. Communalities were estimated from the squared multiple correlation coefficients.

Discriminant Analysis

Another program from the Biomedical series, Discriminant Analysis BMD05M, was used to test the third null hypothesis.

According to Cooley and Lohnes (1962, p. 6), discriminant analysis is best employed when the researcher is interested in examining or predicting the group membership of individuals based on a set of attributes about those individuals.

The procedure involves constructing two or more linear combination(s) of a set of variables such that each combination maximally differentiates among the two or more groups. Bishop (1966, p. 184) again provides a succinct description of the procedure:

Discriminant analysis yields m different linear combinations of the variables, where m is either the number of variables or the number of groups, whichever is smaller. These different linear combinations of the variables are all mutually uncorrelated with one another. In discriminant analysis, each linear combination of the variables is called the discriminant function. As in multiple regression, the relative size of the variable's weight in the linear combination indicates its contribution to the discriminant function and therefore its contribution to discriminating among the groups. The first discriminant function accounts for the maximum variance among the means of the groups, i. e., it maximally discriminates among the groups. Each subsequent discriminant function usually accounts for a smaller portion of the variance than the preceding ones.

The null hypothesis that the discriminant values are the same in all the groups was tested by the Generalized Mahalanobis D-Square Statistic, V :

$$V = \sum_{a=1}^p \sum_{b=1}^p (D_{ab}^{-1}) \sum_{\ell} n_{\ell} (x_{\ell \cdot a} - \bar{x}_{..a}) (x_{\ell \cdot b} - \bar{x}_{..b})$$

V can be used as chi-square with $m(g-1)$ degrees of freedom.

To determine the probability of membership in an extracted

leisure activity factor on the basis of Personality Research Form scores, the following steps were taken: (1) subjects were grouped according to the highest factor score, (2) linear discriminant functions for each group were calculated, (3) the probabilities of misclassifying each subject were calculated.

CHAPTER IV

RESULTS AND DISCUSSION

The primary objective of this investigation was to determine if a significant relationship existed between selected variables of personality and leisure activity preferences. In addition, it was the intent of this research to identify and interpret those variables which contributed most significantly to the relationship, and to examine the extent to which leisure activity preferences can be predicted from a knowledge of personality variables. This chapter is devoted to presenting, analyzing and interpreting the data with respect to these objectives.

Presentation of Results

Hypothesis 1: No significant relationships exist between leisure activity preferences and selected variables of personality.

The first null hypothesis was tested by a canonical analysis model with results subjected to a chi-square test.

As the data in Table VII indicate, four statistically significant correlations were obtained; therefore, the null hypothesis was rejected. The first canonical correlation coefficient (R_{c1}) was .93, significant at the .01 level. Clearly, the magnitude of this correlation demonstrates that the domains of personality and leisure activity

Table VII. Canonical Correlations Between Personality Variables and Leisure Activity Preferences.

R	Canonical correlations	Significance level
Rc1	.931	.01
Rc2	.753	.01
Rc3	.685	.05
Rc4	.517	.05
Rc5	.436	-
Rc6	.382	-
Rc7	.376	-
Rc8	.306	-
Rc9	.233	-
Rc10	.201	-
Rc11	.149	-
Rc12	.079	-

preferences are substantially related. Further evidence for the strength of this relationship was provided by the extraction of three additional significant canonical correlations. The second canonical correlation coefficient was .75, indicating a significant relationship at the .01 level between the second linear functions of the subsets, independent of the first pair of functions. The third canonical correlation coefficient (R_{c3}) was .68, significant at the .05 level. Personality variables and leisure activities were shown to be significantly related in still another way with the fourth canonical correlation (R_{c4}) of .51 found to be significant at the .05 level.

The number of significant canonical correlation coefficients may be regarded as indicating that there are four independent ways in which leisure activity preferences are related to personality. This means that there are at least four distinct dimensions which personality and leisure activities share. Each of the composite variables represented by those dimensions has a correlation significantly greater than 0 with at least one personality variable and one leisure activity variable.

No attempt is made in this section to interpret the canonical correlations because of the general uninterpretability of the unrotated factors.³ The principal loadings on each of the canonical correlates

³ Marion Shaycoft points out that canonical factors can be rotated in a manner similar to factor analysis rotation procedures.

are presented in Appendix C. To allow for a more fruitful interpretation, a discussion of the intrinsic nature of the specific factors connecting the dimensions of personality and leisure activity preferences will be deferred to a later section, where the rotated factors resulting from the factor analysis will be analyzed. The important contribution of canonical analysis to this study is the number of significant canonical correlations, indicating the interdependence between personality variables and leisure activities.

Additional information provided by the canonical analysis is shown in Tables VIII, IX, and X. In Table VIII the intercorrelations among the personality variables are presented. Only those correlations at the .05 level or above were reported. Table IX represents the intercorrelations among the leisure activity preferences. Again, only those correlations significant at the .05 level and above were listed. The intercorrelations of personality variables with leisure activity preferences are displayed in Table X. Thirty-five correlation coefficients were significant at the .01 level and 82 at the .05 level. This information, while providing additional insight into the relationship, failed to indicate the degree of confidence the investigator could place in the overall hypothesis.

Table VIII. R_{11} Personality Need Interrelations.

	Ac	Af	Ag	Au	Do	En	Ex	Ha	Im	Nu	Or	Pl	Sr	Un
Ac					.28	.56			-.28		.31	-.33		.31
Af				-.42	.25		.39			.52		.48	.36	
Ag					.36	-.24	.42	-.23	.47	-.22	-.27			
Au		-.42				.18		-.31		-.27	-.27		-.55	
Do	.28	.25	.36				.48							
En	.56		-.24	.18					-.31		.35	-.26		
Ex		.39	.42		.48			-.21	.34		.44		.27	
Ha				-.31			-.20		-.17			-.23		
Im			.47				.34				-.49		.36	
Nu		.52	-.23	-.27										
Or	.31		-.27			.35			-.49		-.25			
Pl	-.33	.48	.26				.44	-.22	.36					
Sr		.36		-.55			.27							
Un	.31					.34								

$r < .13, p > .05$

$r < .22, p > .01$

Table IX. R₁₂ Personality and Activity Intercorrelation.

	Ac	Af	Ag	Au	Do	En	Ex	Ha	Im	Nu	Or	Pl	Sr	Un
Played Games			.19			-.15	.20		.14			.14		
Paint/Crafts	.36		-.18			.28			-.16		.24	-.23		.21
Read Books														.42
Musical Instrument					.15		.30				-.14			.14
Went to Party		.24	.29		.28		.38	-.24				.28		
Attended Sports			.29		.16				.25			.18		-.26
Participated in Dramatics							.27						.14	.20
Attended Club Meetings		.17									.27		.16	
Played Tennis					.23		.18					.22		
Played Basketball			.17					-.21	.16	-.25	-.22	.15		
Played Softball			.15	.16	.25								.16	
Played Football			.17	.17				-.14	.23	-.15	-.25	.22		
Camped out Overnight														
Hiking/Backpacking				.20	.14	.22		-.24						.21
Went Hunting			.24		.14			-.30		-.20		.15		
Went Fishing			.18	.14	.18			-.24		-.26				-.15

(Continued on next page)

Table IX. (Continued)

	Ac	Af	Ag	Au	Do	En	Ex	Ha	Im	Nu	Or	Pl	Sr	Un
Boating/Canoeing								-. 20						
Bicycling for Pleasure	. 22	. 24	-. 16							. 17				
Went on Picnics	. 17						. 22			. 14				
Went Swimming		. 14					. 16					. 18		
<hr/>														
r < .13, p > .05														
r < .22, p > .01														

Table X. R_{22} Leisure Activity Intercorrelations.

	Games	Painting	Reading	Musical Instrument	Party	Sports Events	Drama	Club	Tennis	Basketball
Games										
Paint/Craft			.19	.20		-.20	.29		.28	
Read Books		.19					.29		.15	-.20
Musical Instrument		.20							.30	-.20
Party with Friends						.27				
Sports Events		-.20			.27					.41
Dramatics		.29	.29							
Club/Organiza- tional Meetings									.16	-.16
Tennis		.28	.15	.30				.16		
Basketball			-.20	-.20		.41		-.16		
Softball					.25	.25				.42
Football		-.25				.38		-.16		.66
Camped Out					.21			.32		
Hiking/Backpacking								.40		
Hunting		-.14	-.15	-.20	.37					.34
Fishing										.40
Boating/Canoeing					.28			.15		
Bicycling				.25				.13		.25
Picnics		.24						.34	.23	
Swimming								.31		

(Continued on next page)

Table X. (Continued)

	Softball	Football	Camping	Hiking	Hunting	Fishing	Boating	Bicycling	Picnics	Swimming
Games										
Paint/Craft		-.25			-.14				.24	
Read Books					-.15					
Musical Instrument					-.20			.25		
Party with Friends	.25		.21		.37		.28			
Sports Events	.25	.38								
Dramatics										
Club/Organizational Meetings		-.16	.32	.40			.15	.13	.34	.31
Tennis			.15							
Basketball	.42	.66				.34	.40			
Softball		.43	.35		.34	.36				.37
Football	.43				.28	.38				.20
Camped Out	.35			.66	.20	.39	.50	.20	.38	.46
Hiking			.66		.26	.31	.48		.32	.31
Hunting	.34	.28	.20	.26		.66	.30			.18
Fishing	.36	.38	.39	.31	.66		.41			
Boating/Canoeing			.50	.48	.30	.41				.43
Bicycling			.20						.28	.20
Picnics			.38	.32				.28		.39
Swimming	.37	.20	.46	.31	.18		.43	.20	.39	

Hypothesis 2: No factors or independent dimensions of leisure activities can be extracted from the reported leisure preferences of the sample subjects.

The second null hypothesis was tested by a factor analysis model which performed a principal components solution and an orthogonal rotation of the factor matrix.

As the data in Table XI indicate, four factors were extracted, accounting for 52 percent of the common factor variance. The decision to retain and rotate four factors to simple structure, while based primarily on interpretability, was reinforced by the information provided by canonical analysis. In a preceding section, four significant canonical correlations were obtained. This finding suggested that a minimum of four factors should be rotated since the canonical analysis indicated that there were four completely independent dimensions connecting the personality and leisure activity variables (Shaycoft, 1967, p. 6-43).

Table VIII shows the magnitude of the activity loadings on each of the four factors. The activities with the highest loadings for factor ON were hiking, backpacking, camping out overnight, boating, canoeing, fishing, hunting, swimming outdoors, picnics and attending organization and club meetings. Since such a remarkable degree of similarity was displayed between the activities loading on this factor and on one previously discovered by Witt (1971), the researcher extended Witt's label of ON, for Outdoor Nature, to the newly

Table XI. Principal Loadings on Four Leisure Activity Factors.

Factor I Outdoor-Nature	Factor II Sports	Factor III Aesthetic-Sophisticate	Factor IV Leisure Detachment
Hiking/Backpacking (.88)	Played Football (.88)	Played Tennis (.36)	Participated in Dramatics (-.90)
Camped out Overnight (.43)	Played Basketball (.53)	Played Musical Instrument (.23)	Played Games (-.15)
Boating/Canoeing (.30)	Played Softball (.43)	Paint/Crafts (.19)	Paint/Crafts (-.10)
Fishing (.23)	Attended Sports (.28)	Read for Pleasure (.15)	Went to Party (-.10)
Hunting (.21)		Participated in Dramatics (.11)	Read for Pleasure (-.07)
Club/Organizational Meetings (.20)		Went Hunting (-.08)	Played Musical Instrument (-.06)
Swimming Outdoors (.17)			Swimming Outdoors (.05)
Picnics (.11)			Attended Sports Events (.05)

extracted factor. The ON label was selected by Witt because "the high loadings seem to pertain to outdoor, fresh-air pursuits undertaken in natural environments" (1971, p. 217).

Factor S displayed highest loadings on playing football, basketball, softball and attending sports events. Relatively high negative loadings were found for painting and crafts. Again, a marked similarity was found to exist between the activities loading on this factor and those discovered earlier by Witt. The activities were all identified as traditional major sports endeavors. The action-oriented nature of these seasonal competitive activities led Witt to name his factor Sports. The same label was used in this study.

The third factor extracted, SA, had highest loadings for playing tennis, playing musical instruments, participating in dramatics, painting, crafts, bicycling and reading for pleasure. Hunting displayed a negative loading on this factor. Again because of the remarkable resemblance, another of Witt's labels, Aesthetic-Sophisticate, was borrowed to describe the factor. The description Aesthetic was appropriately applied to account for the abundance of creative, self-expressive activities found in Factor SA. The term Sophisticate was selected by Witt because "the activities could be considered 'high brow' in that they are usually considered as being related to sophisticated use of one's leisure time" (Witt, 1971, p. 217).

The fourth factor, LD, unlike the others, bore no resemblance

to any of the factors previously identified by Witt. The term Leisure Detachment was selected to describe this factor because almost all of the high activity loadings were found to be negative. All but two of the activities analyzed exhibited negative loadings. Of particular interest is the overwhelming rejection of dramatics displayed by this factor. Only swimming outdoors and attending sports events received positive loadings. Even then, both of these loadings were of insignificant magnitude. The consistently high negative loadings on almost all of the leisure activities show a lack of interest in a wide variety of free time pursuits. However, caution should be exercised in the interpretation of this apparent detachment. It is possible that these loadings are more a result of the restricted number of activities included for analysis than of actual estrangement from participation in free time activities.

In an effort to interpret and describe the identified factors, factor scores for each subject were calculated and correlated with the 14 PRF variables. The correlations are presented in Table XII. Inspection of Table XII shows that several significant relationships were identified, all of which allowed for an expanded interpretation of the factors.

Persons with high scores on LD displayed significantly high negative correlations with the variables of Exhibition, Understanding and Achievement. The composite character of individuals occupying

Table XII. Correlation of Factor Scores with Personality Variables.

Variable	Factor			
	ON	S	SA	LD
Achievement	.08	-.13	.09	-.14 ^a
Affiliation	.08	.05	.14 ^a	-.09
Aggression	.04	.23 ^b	-.10	-.04
Autonomy	.15 ^a	.16 ^a	.07	.03
Dominance	.19 ^a	.16 ^a	.23 ^b	-.10
Endurance	.20 ^a	-.09	.09	-.07
Exhibition	.14	.09	.26 ^b	-.30 ^b
Harmavoidance	-.24 ^b	-.18 ^a	-.08	.10
Impulsivity	-.02	.23 ^b	.03	-.01
Nurturance	.01	-.23 ^b	.05	-.03
Order	.03	-.26 ^b	-.06	-.06
Play	.00	.24 ^b	.13	.00
Social Recognition	.03	.02	.08	-.03
Understanding	.16 ^a	-.18 ^a	.04	-.24 ^b

^a $r < .14$, $p > .05$

^b $r < .22$, $p > .01$

this factor, with their demonstrated need for anonymity and apparent lack of curiosity and enthusiasm for the activities included lends considerable support to the previously discussed factor interpretation.

Also in agreement with the factor designation were the individuals in Factor ON, who demonstrated high needs for Endurance, Autonomy, Dominance and Understanding and a rejection of Harmavoidance. These dimensions seem to capture the rugged, self-reliant character of outdoor experiences.

Persons with high scores on the Sports factor were inclined to be more aggressive, impulsive and playful than their counterparts. At the same time they tended to be less nurturant, orderly and understanding. All of these traits seem to comply with the active, "rough and tumble" nature of competitive sports activities.

Those individuals scoring high on factor SA exhibited high correlations with the variables of Exhibition, Dominance and Affiliation. The preponderance of activities in this factor which are frequently termed the "performing arts" appears to correspond with this group's need to command others' attention.

Hypothesis 3: No significant differences exist between the discriminant means of each of the leisure activity factors.

The third null hypothesis was tested by a discriminant analysis model, with the results subjected to a chi-square test. As indicated

in a previous section, the factor analysis model grouped the individual subjects into four classes based upon their highest estimated factor score.

Testing the significance of the differences between these classes was an essential prerequisite to the computation of probabilities of group membership. In this study, the Generalized Mahalanobis D-Square statistic, used as chi-square, was applied to test the hypothesis that the mean values were the same in all factor groups. The value derived was 99.07 with 42 degrees of freedom which was significant at the .01 level. The chances, then, of producing group differences this large by drawing four samples at random from a 14-dimensional multidimensional swarm is less than one in a hundred. Thus, the null hypothesis that the factor groups have similar personality characteristics is untenable.

To ascertain the probability of membership into one of the four leisure activity factors based on individual personality scores, it was necessary to compute individual discriminant scores (Table XIII).

The following equation was used:

$$V = \sum_{a=1}^p \sum_{b=1}^p (D_{ab}^{-1}) \sum_{\ell=1}^g n_{\ell} (x_{\ell \cdot a} - x_{\cdot \cdot a}) (x_{\ell \cdot b} - x_{\cdot \cdot b})$$

An individual's first discriminant score is computed by multiplying his score on the first personality variable, Achievement, by 1.2. This product is then added to the product of his score on

Affiliation multiplied by 7.8, and this same process is repeated for the remaining 12 personality variables. The second discriminant score is computed by summing the products of the same 14 personality variables and their corresponding coefficients listed in Table XIII. The third and fourth discriminant scores are obtained by using the coefficients of personality scores found in columns three and four respectively. All four discriminant scores for each of the 139 subjects were computed.

The probabilities of misclassifying each subject were then calculated using the discriminant scores. Each individual was assigned to that group for which his or her discriminant score was highest. In this way, group membership was predicted by assigning the subject to the group for which he had the highest probability. Because probabilities indicate the relative group densities at and around each subject's profile, the prediction was that an individual would be placed in that group into which most subjects similar to him tended to be placed. Table XIV illustrates the number of "hits" and "misses" resulting from this assignment procedure. The diagonal cell entries (from upper left to lower right) represent the correct classifications. A "hit" refers to an individual being correctly assigned to that class for which he or she had been predicted. Of the 51 subjects who had high ON factor scores, 26 were correctly assigned to that group on the basis of their personality scores. Twenty-five or 49 percent of

Table XIII. Discriminant Function Coefficients.

Personality score	ON	S	SA	LD
Achievement	1.2	1.4	1.6	1.7
Affiliation	7.8	7.8	5.3	5.2
Aggression	5.5	5.3	2.4	6.4
Autonomy	2.1	2.0	2.0	2.1
Dominance	-5.5	-5.1	-5.2	-6.7
Endurance	2.8	2.9	1.7	3.1
Exhibition	-7.9	-9.0	-6.1	-9.0
Harmavoidance	1.2	1.4	1.3	1.5
Impulsivity	1.2	1.4	1.3	1.5
Nurturance	-2.0	-1.9	-6.0	4.7
Order	9.7	8.6	8.5	9.8
Play	2.0	2.2	2.2	2.3
Social Recognition	1.0	9.5	9.8	9.1
Understanding	1.4	1.2	1.2	1.3

Table XIV. Discriminant Analysis Classification Matrix.

Group predicted	Group entered				Probability of group misclassification (%)
	ON	S	SA	LD	
ON	26	11	8	6	49
S	7	17	9	8	58
SA	3	5	15	3	42
LD	2	3	1	15	29

Overall probability of misclassification = 47%

this Outdoor-Nature group were misclassified. Group two, Sports, displayed the worst prediction record. Of the 41 whose membership was determined by a high sports factor score, only 26 (42 percent) had high enough discriminant scores to correctly place them in that group. In the case of group two, then, there were 24 "misses," or 58 percent of the subjects who were misclassified based on their personality scores. The matrix data in Table XIV show increasing classification success for groups three and four. Group three, Aesthetic-Sophisticate, displayed a misclassification probability of 42 percent. Group four, Leisure Detached, had the lowest misclassification percentage (29 percent) of all the groups. Fifteen of the 21 members of group four were classified correctly based on their personality scores.

By applying the following formula, the total or overall probability of misclassifying a subject was computed:

$$P_{mc} = \sum \left(\begin{array}{c} \text{Probability belong} \\ \text{to group } i \end{array} \right) \cdot \left(\begin{array}{c} \text{Probability of misclassification} \\ \text{given belong to group } i \end{array} \right)$$

$$\text{Probability belong to group } i = \frac{\text{No. in } i}{\text{Total no.}}$$

$$\text{Probability of misclassifying } l \text{ in group } i = \frac{\text{No. misclass. in } i}{\text{Total in } i}$$

As shown in Table XIV, this formula has provided a total probability misclassification figure of 47 percent. Therefore, when personality scores were used as predictors of leisure activity preferences, a 53 percent "hit" or success rate was attained. In effect, the use of personality variables has allowed the investigator to increase the probability of successfully predicting leisure activity preferences for sample members to over 50 percent as opposed to a random figure of only 25 percent.

Summary of Presentation of Results

A significant relationship was established between selected variables of personality and leisure activity preferences using a canonical analysis model. Evidence for the substantial interdependence displayed between the two dimensions was provided by four statistically significant canonical correlation coefficients, two of which were significant at the .01 level.

Using the principal components of factor analysis model, four factors were extracted from the data, accounting for 52 percent of the

common variance. Three of the four factors, ON, S, and SA, were remarkably similar to those identified in an earlier study by Witt (1971). Factor ON, Outdoor-Nature, had high loadings for the activities of hiking, backpacking, boating, canoeing, camping, hunting, fishing, swimming outdoors, picnics and attending club or organization meetings. Factor S, Sports, had high loadings for football, softball, basketball, attending sporting events and painting (negative). Factor SA, Aesthetic-Sophisticate, had high loadings for tennis, playing a musical instrument, dramatics, painting, reading for pleasure, bicycling and hunting (negative). The fourth factor, Leisure Detachment, did not resemble any of the factors previously identified by Witt (1971). High negative loadings were found on all but two of the activities.

To allow for an expanded interpretation of the four factors, factor scores were calculated for each subject and correlated with the 14 personality variables. A number of significant relationships were identified which consistently provided support for the factor interpretations.

A discriminant analysis model was used to examine the extent to which membership into one of the four factor groups could be predicted from personality scores. Discriminant scores were computed for all 139 subjects and were used to calculate the probability of misclassification for each subject. The overall probability of misclassification was found to be 47 percent. This figure represented a better than 25 percent improvement from random in prediction capability.

Discussion of Results

The canonical analysis model provided an affirmative answer to the primary question posed by this research: Are personality variables and leisure activity preferences significantly related? The strength of this interdependence was demonstrated by the number and magnitude of correlations derived. It was discovered that there were four independent ways in which leisure activity preferences were significantly related to personality variables. These findings help to dispel the somewhat inconclusive results reported earlier by Farina (1965) and Ibrahim (1969). In fact, the extent of the significant departure from chance found in this study suggests that personality has a substantial influence on an individual's choice of leisure activities.

Henry Murray's (1938) Needs-Press theory provides a generalized explanation of why such a relationship does exist. To reiterate, Murray postulated that each individual has certain needs around which his or her personality is organized. Man, in Murray's view, is set in motion by this complex of needs. Further, he postulates that when a need is aroused, the individual is in a state of tension, and satisfaction of the need involves reduction of the tension. The organism eventually learns to attend to objects and perform acts that it has found in the past to be associated with tension reduction. It is conceivable

that many of the needs Murray employs to underlie human functioning in general could be directly applicable to leisure activity preferences. In other words, an individual selects specific leisure activities on the basis of their ability to satisfy certain needs and thereby reduce tension. A person can be expected to choose those activities whose inherent values are consistent with his personality style. If each leisure activity is seen as having some interpersonal quality about it, e.g., chance to enjoy interaction, dominate or get away from, then we could expect individuals to select activities embracing the quality which is most appropriate for them. It is assumed that some leisure activities satisfy the needs of individuals better than others, and that the individual's own unique personality determines what is most appropriate for him.

Insight into the specific nature of this relationship between individual needs and leisure preferences was provided by correlating factor scores with personality variables. The results of this analysis indicated that personality needs differed substantially from one leisure activity group to another. These findings suggest that those individuals who prefer Outdoor-Nature activities are more persevering, forceful, adventurous, self-reliant, and intellectually curious. All of these traits seem to be compatible with the rugged, austere and individualistic nature of many outdoor recreation activities. This characterization of the outdoor enthusiast receives support from

Stone and Taves (1958), who suggest that the need to confirm one's virility to oneself and to others is a primary function of camping.

Those individuals who prefer sports activities are more aggressive, incautious, spontaneous and pleasure-seeking. Again, these personality characteristics conform to the unrestrained, "rough and tumble" quality of most sports activities. The high score on aggression for sports aficionados is supported by previous investigations (Johnson, 1955; Booth, 1958; Kroll, 1965).

Those persons who are partial to the Aesthetic-Sophisticate, or more "culturally" oriented leisure pursuits, appear to be more attention-seeking, domineering, and affiliative. The extremely high score on dramatics and other performing arts activities displayed by these individuals corresponds to their apparent need to attract attention.

Those individuals who belong to the Leisure Detached group display no preferences for any of the leisure activities included in this study. This rejection of recreation pursuits comes as no surprise, since upon inspection of the group's personality composition it is clear that these individuals are less inclined to become involved by virtue of their withdrawing, self-effacing and unambitious nature.

These results lend support to the notion that different leisure activities appear to attract individuals with different needs. While a close relationship has been shown to exist between personality and

leisure preferences, the fundamental question of cause and effect, however, remains unresolved. For example, this research does not indicate whether the high score on aggression for sports enthusiasts is the direct result of continued participation in aggressive sports activities or the cause or prerequisite for successfully engaging in these competitive pursuits. The task of determining whether the appearance of particular personality factors are a part of the individual before he engages in certain leisure activities or the effect of his involvement is left to ensuing investigation. It is felt that many more studies are necessary before cause and effect statements can be attributed to the relationship between personality and leisure activity preferences.

The four factors that were extracted from the data of this study were quite interpretable. An interesting finding was their similarity to those factors found earlier by Witt (1971). As mentioned previously, Witt, in his factor analysis of the leisure preferences of adolescents in four midwestern cities, found four activity factors which he termed Sports, Outdoor-Nature, Aesthetic-Sophisticate, and Adolescent-Social. The ability of this investigation to essentially replicate three of these four factors lends a great deal of credence to Witt's claim for the existence of stable leisure activity dimensions. The generalizability of his claim is tarnished somewhat, however, by the failure of this study to reproduce his fourth factor,

Adolescent-Social. One can only speculate as to why the difference occurred. Perhaps the difference can be attributed to a bias inherent in the sample population. Or possibly the prevalence of "socializing with one's peers" as reflected in Witt's description of Adolescent-Social is, for this sample, not confined to primarily one dimension, but dispersed throughout all the activity factors (with the exception of leisure detachment).

The efficacy of the latter explanation is supported by the moderate loadings for Affiliation shown on three of the four factors. Regardless, the inconsistency of the findings points to the need for additional factor analytic studies dealing with the common dimensions underlying leisure activities.

Other differences occurred between this study and Witt's which need mention. First, the four factors extracted from Witt's samples in all cases accounted for more than 80 percent of the common factor variance. This investigation accounted for just over 50 percent of the variance. The significant discrepancy erodes the stability claim to some degree. Second, the order of factor extraction differed for the two studies. The Sports factor was extracted first in Witt's analysis and claimed the most variance. Outdoor-Nature was the first and largest factor identified in this study. Again, these differences reinforce the need for more factor analysis studies.

An important finding of this study is that people with similar

personalities tend to make the same type of leisure activity choices. The implications of this finding were shown through the application of multivariate analysis procedures.

The results of the discriminant analysis clearly indicate that personality variables can be useful in helping to predict the leisure activity preferences of individuals. The use of selected personality variables allowed the investigator to increase the probability of correctly predicting leisure activity preferences for sample members to over 50 percent. As noted, this figure represented an improvement from random in excess of 25 percent in prediction capabilities.

It should be noted, however, that in the present investigation, considerable risk of error is involved in inferring that an individual with a certain personality score should not prefer, for example, sports or outdoor recreation activities. The overall probability of misclassifying each individual is 47 percent. The most appropriate inference that can be drawn from these data is that for each individual, given his or her combination of discriminant scores, one group of activities would more closely conform to his expressed needs and interests than would the others.

CHAPTER V

SUMMARY, CONCLUSIONS AND
RECOMMENDATIONSSummary

This investigation was an attempt to assess the relationship between selected variables of personality and leisure activity preferences using multivariate statistical procedures. It was shown that previous attempts to explain man's use of leisure have persistently emphasized demographic variables such as income, sex, occupation and age. While this concentration on demographic variables has provided some useful information, it has failed to provide a comprehensive explanation of leisure behavior.

The inability of social indices to provide a complete explanation prompted some investigators to explore the psychological dimensions of leisure, specifically, the effect of personality variables on free time activity preferences. Empirical results provided by these investigations were found to be inconsistent and inconclusive. It was suggested that a primary reason for the inconclusive findings could be the limited statistical procedures used by previous researchers. Therefore, three multivariate statistics were employed in this study to more accurately determine whether a significant relationship existed between personality and leisure preferences, and if so, to what degree

these free time choices could be predicted from a knowledge of personality characteristics.

Subjects for this study included male and female high school students in grades 10-12. The 139 subjects who participated were drawn from randomly selected classes in social science, science and physical education.

The primary sources of data were the students' responses to the Leisure Activity Questionnaire and the Personality Research Form (Forms A and B). The Leisure Activity Questionnaire, representing a modified version of Witt's (1971) questionnaire, was used to collect data on the preferences of students for 32 leisure activities. The Personality Research Form, based on Murray's Needs-Press theory, provided scores which measured 14 personality needs relevant to a wide variety of human functioning.

The data were analyzed through the integration of three multivariate statistical procedures: canonical analysis, factor analysis and discriminant analysis. Canonical analysis was first used to determine the degree of confidence which could be placed in the overall hypothesis that personality variables and leisure activity preferences were significantly related. Factor analysis provided additional insight into this relationship through the correlation of factor scores with selected personality variables. In addition, factor analysis was employed to extract the minimum number of dimensions necessary to

account for most of the variance in the reported leisure activities of the study's subjects. The extracted factors were compared to those identified earlier by Witt (1971). Discriminant analysis, the third multivariate procedure, also used the derived factors in determining the probability of a subject's classification into one of these leisure activity dimensions based on his personality characteristics.

Conclusions

1. Selected variables of personality were significantly related to leisure activity preferences.
2. Four factors or independent dimensions of leisure activity were extracted from the data. Three of the four factors, Outdoor-Nature, Sports, and Aesthetic-Sophisticate, demonstrated a marked similarity to factors found in an earlier investigation. The fourth factor, which was labeled Leisure Detachment, displayed no resemblance to previous research findings.
3. A correlation of leisure activity factor scores with the 14 PRF variables produced several statistically significant relationships. These significant correlations provided substantial empirical support for the four factor interpretations.
4. The use of selected variables of personality substantially increased the probability of correctly predicting leisure activity preferences.

Recommendations

Based on the results of this investigation, several recommendations appear to be appropriate. The first and most important recommendation is that this study be replicated by other investigators to determine if the findings obtained from this research are generalizable to other sample populations.

If further studies demonstrate a consistently significant relationship between personality variables and leisure activity preferences, evidence would be provided for an expanded conceptualization of leisure behavior. The explanatory and predictive contributions of psychological variables would then be recognized as having importance equal to or greater than the traditional social variables of age, income, sex and occupation. An expanded conceptual base, integrating the information from these intrinsic and extrinsic determinants could ultimately result in a more accurate and comprehensive explanation and prediction of leisure behavior.

Due to the inconsistencies found between the factors identified in this study and those extracted earlier by Witt (1971), replication of the factor analysis model is also important to substantiate Witt's claim for the existence of stable leisure activity dimensions. Knowledge of the structure of leisure activities may have some important practical implications. As Witt (1971) suggests, identification of stable leisure dimensions can aid in the development of a

comprehensive yet economical community recreation program.

Assuming that activities within the same factor satisfied similar participant needs, activities could be substituted in an attempt to "ration limited resources over the full range of needs" (Witt, 1971, p. 219).

Studies need to be undertaken which transcend the limited scope of this investigation. Further studies, rather than focusing solely on the relationship between individual preferences and leisure activities, need to incorporate research designs which allow for exploration of the fundamental problem of cause and effect. The task of determining whether personality characteristics are part of the individual before he participates in certain leisure activities or the effect of his continuing involvement is crucial to expanding the theoretical parameters of leisure.

Finally, it is imperative that additional research be undertaken to further assess and define the ability of personality variables to predict leisure activity preferences. The implications of expanded research in this area for recreation practitioners are tremendous. Future researchers could, based on methodological procedures similar to those employed in this study, develop an instrument

composed of a small battery of personality assessment items and use this effectively as a device for leisure counseling.

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APPENDICES

Appendix A

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LEISURE ACTIVITY QUESTIONNAIRE

The following is a list of activities which many people do during their free time. Think of how many DAYS you did each of these activities in the last month, then mark(X) the space in the column which tells the number of DAYS you did the activity in the LAST 30 DAYS. DO NOT include in your estimate the days you participated in an activity solely as a school requirement(ie., P.E., Art or Music class).

	None	1	2-5	6-10	11-15	Over 15
1. Watched educational television(Channel 7) .	___	___	___	___	___	___
2. Played games like cards, monopoly.	___	___	___	___	___	___
3. Did some painting or craft activity.	___	___	___	___	___	___
4. Listened to records.	___	___	___	___	___	___
5. Read a book for pleasure	___	___	___	___	___	___
6. Played a musical instrument.	___	___	___	___	___	___
7. Visited a friends' home.	___	___	___	___	___	___
8. Went to a party with friends	___	___	___	___	___	___
9. Attended some sports event.	___	___	___	___	___	___
10. Went to a movie	___	___	___	___	___	___
11. Participated in some dramatics activity.	___	___	___	___	___	___
12. Attended club and organization meetings.	___	___	___	___	___	___
13. Went bowling.	___	___	___	___	___	___
14. Went swimming(indoors)	___	___	___	___	___	___
15. Played chess	___	___	___	___	___	___
16. Worked on a car	___	___	___	___	___	___

Now we would like to know how often you do certain activities that are usually done a certain season of the year. For example, skiing during the winter. How many DAYS did you do each of these activities DURING THE LAST SEASON FOR THAT ACTIVITY?

	None	1-3	4-9	10-20	20-30	Over 30
17. Played tennis.	___	___	___	___	___	___
18. Played basketball.	___	___	___	___	___	___
19. Played golf.	___	___	___	___	___	___
20. Played softball.	___	___	___	___	___	___
21. Played football.	___	___	___	___	___	___
22. Camped out over night.	___	___	___	___	___	___
23. Went hiking or backpacking	___	___	___	___	___	___
24. Went hunting	___	___	___	___	___	___
25. Went fishing	___	___	___	___	___	___
26. Went rock or mountain climbing	___	___	___	___	___	___
27. Went snow-skiing	___	___	___	___	___	___
28. Went cross-country skiing	___	___	___	___	___	___
29. Went boating or canoeing	___	___	___	___	___	___
30. Went bicycling for pleasure	___	___	___	___	___	___
31. Went on picnics.	___	___	___	___	___	___
32. Went swimming (outdoors)	___	___	___	___	___	___

APPENDIX B

COVER LETTER FOR QUESTIONNAIRE

Dear Test Administrators and Students:

Enclosed in each numbered envelope are two questionnaires which will take a few minutes of your time to complete. One hundred and fifty of your fellow students at Corvallis High are participating in this study. Hopefully, the results will help improve the quality of recreation facilities and programs available to students in both the school and community.

Your response to the questionnaires will be held in the strictest confidence. Please do not sign your name to either of the questionnaires. Place only your age and sex in the space provided on the Personality Research Form answer sheet.

It is very important that you carefully follow the instructions provided on both questionnaires. Please don't forget to:

- 1) Use the pencil provided in your envelope. Erase completely any answer you wish to change.
- 2) Try to make some answer to every question.
- 3) When estimating the number of days you participated in certain free time activities on the Leisure Activity Questionnaire, please do not include activities you took part in to satisfy a school requirement. For example, playing tennis in P. E. or painting in Art class should not be counted.
- 4) Place all test materials back in the numbered envelope when finished.

Thank you for your cooperation. Your willingness to participate is truly appreciated.

Sincerely,

Dennis Howard
Graduate Student

APPENDIX C

PRINCIPAL LOADINGS (BETA WEIGHTS) ON CANONICAL CORRELATIONS

Personality variables	Leisure activity preferences	Personality variables	Leisure activity preferences
<u>Rc1 = .931</u>		<u>Rc2 = .753</u>	
Impulsivity (.4203)	Fishing (.4190)	Exhibition (.3915)	Fishing (.3703)
Exhibition (.3290)	Swimming (.3473)	Impulsivity (.3626)	Swimming (.3228)
Autonomy (.3285)	Camped out Overnight (-.3261)	Dominance (.3271)	Football (.3045)
Play (.3276)	Football (.2967)	Autonomy (.3271)	Camped out Overnight (-.3037)
Aggression (-.1942)		Endurance (.3219)	Dramatics (.2598)
		Aggression (-.2421)	
<u>Rc3 = .685</u>		<u>Rc4 = .517</u>	
Understanding (-.6674)	Painting/Crafts (-.4756)	Social Recognition (.5145)	Painting (.6572)
Play (.5561)	Hiking/Backpacking (-.4154)	Understanding (.5115)	Fishing (.5279)
Affiliation (-.4331)	Games (.4080)	Impulsivity (.4663)	Read for Pleasure (.3553)
Social Recognition (-.3369)	Tennis (.3077)		Hunting (-.3467)
	Read for Pleasure (-.2883)		