

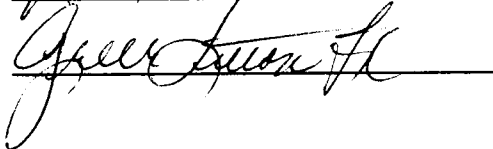
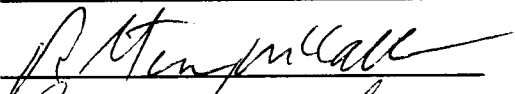
To the Graduate Council:

I am submitting herewith a dissertation written by Patrice M. Ryan entitled "Discriminant Function Analysis of the Response Style of Student Athletes to the Strong Interest Inventory." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Education.



Marla Peterson, Major Professor

We have read this dissertation
and recommend its acceptance:



Accepted for the Council:



Associate Vice Chancellor
and Dean of the Graduate School

**DISCRIMINANT FUNCTION ANALYSIS OF THE RESPONSE STYLE
OF STUDENT ATHLETES TO THE STRONG INTEREST INVENTORY**

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Patrice M. Ryan

May, 1994

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DEDICATION

This dissertation is dedicated to my grandparents, John Joseph Ryan, the traditional Irish cop, and Caroline Hoagland Keating, the non-traditional, independent working woman, whose career paths subtly yet powerfully influenced my own.

ACKNOWLEDGEMENTS

Creation of a work of this order does not occur without the help and support of many others. I am indebted to Dr. Marla Peterson who chaired my committee and gave me wise and sound guidance throughout the process, as well as the members of my committee, Dr. Greer Litton Fox, Dr. R. Steve McCallum and Dr. Carmen J. Tegano for their time and attention. I am sincerely grateful for material, but even more importantly moral, support from the staffs of the Office of Student Life of the men's Athletic Department, and the Educational and Counseling Psychology Department. Student athletes continually inspire me to challenge limits that I believe are present in my life, and I am thankful for their inspiration. My deepest thanks go to my family and friends whose faith and encouragement have been a constant presence which lights my way. Words are feeble substitutes for the emotions I feel for my parents, Jack and Dolores Ryan, my sisters and their families, my brother and his family, and my dear friends Sandy Daigle, Bill Powell, Bill Hale, and Peach Clyde, whose confidence sustained me when my own waned.

ABSTRACT

Strong Interest Inventory (SII) profiles (1985 revision) of 207 student athletes from an NCAA Division I university in the Southeast were analyzed. The Chi-square test was administered to test the hypothesis that the response style on the Strong Interest Inventory of student athletes is the same as the response style of the non-athlete population from the same university. Discriminant function analysis was used to test the hypothesis that no subset of the variables: race; gender; parent gender; composite college entrance exam score (ACT/SAT); total academic credits from high school; high school grade point average; size of high school locale; high school graduating class size; or sport type, as reported on the student's record, discriminates profiles with a Low Like Preference response style from profiles with a Regular Like Preference response style.

Results indicated a significant difference ($p > .001$) in the response style on the SII between student athletes and non-athlete students. None of the nine predictor variables approached significance in predicting response style of student athletes on the SII. When scores on the Basic Interest Scale for Athletics was added as a tenth predictor variable of Total Like Preferences, the total model was statistically significant $F(12) = 5.64$, $p > .0001$, and Athletics interest was the only significant predictor variable $F(1) = 46.13$, $p > .0001$. Correlations between scores on the Basic Interest Scale for Athletics and Total percentage of Like Preferences

were such that the higher the score on the athletic interest scale, the higher was the total number of Like Preferences for the entire inventory.

Student athletes as a group were shown to be very homogeneous regardless of race, gender, sport type, gender of the parent who is the head of their household, size of high school or home town, or academic achievement in high school. Yet, they differed significantly from the general student population from their same university in their response styles on the SII. Implications for career counseling and career development programming were presented.

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CHAPTER I

Introduction

Theoretical Background

The topics of career development and selection have implications for the individual, the family and the society at large. The different implications of decisions made in the career selection process have caused this field to have been studied from a variety of perspectives. Each separate perspective views the phenomenon somewhat differently.

Psychologists who are career development specialists focus with the client, either individually or in groups, on issues of career interests, skills assessment, work and lifestyle values, job satisfaction, career information gathering, and job success. Sociologists who specialize in the area of career development are concerned with the impact career selection has on the society at large in terms of social stratification, access to employment according to group membership, group trends in career selection, social class mobility, and economic development of specific groups. Specialists in the area of family studies are interested in the ways in which the family structure influences career selection and how career interests are transferred from one family member to another.

When discussing the process of occupational choice, Levine (1976) stated,

We have ample evidence that socioeconomic origin, family support, race, sex, and intelligence all play a part in the process. We know

such variables are imperfect indices of complex processes, processes that are complicated by their interaction with factors of social structure and social change (p. 285).

Career theoretician Donald Super reflects the multi-dimensionality of the career selection process when he identifies himself as a "Differential, Developmental, Social, Phenomenological Psychologist" (cited in Zunker, 1994, p. 30).

Regardless of the perspective from which one chooses to study it, the connection between life work and social position is a rich and important area to investigate. This study will be taken from the psychological perspective, with a focus on the analysis of the manner in which individual members of a selected population respond to a standardized measure of career interest. As it has been demonstrated that career interests influence the selection of a career, it is then relevant to study the structure of career interests. By choosing a type of work to pursue, one is also choosing a position to occupy within the society's social structure.

Psychosocial Influences on Occupational Choice

Picou and Cosby (1977) have demonstrated the importance of considering both the psychological and sociological perspectives of occupational choice in order to more clearly understand the process of occupational choice. Sewell and Martin (1976) noted that though

psychology and sociology may seem to have differing points of view on occupational choice and to be independent of one another, there is an interrelationship between the two perspectives which demonstrates that "an individual's position in the social structure often determines educational and economic opportunities which in effect shape the self-concept and general value orientation leading to occupational choice" (p. 326).

Sociological Dimensions of Occupational Choice

One of the primary determinants of occupational choice when viewed solely from the sociological perspective, has been socioeconomic status. It has been claimed that the way a society is structured, including its educational and occupational values, has a great influence on a person's motivation to achieve (Sewell and Martin, 1976). There are many other important sociological dimensions related to occupational choice. The means through which individuals move throughout the levels of society, thus gaining access to rights and privileges of a given social strata, and the dimensions upon which a society is stratified are important factors to consider when studying the predictors of occupational choice.

Social stratification.

Of all the topics studied by sociologists which are relevant to the topic of occupational choice, the topic of social stratification probably has the greatest impact on the career choice process. A brief discussion of the process of social stratification will provide a larger context from which to

best understand the significance of career selection. Tumin (1967) stated that,

Enough is now known about how any given variable such as age, sex or race is generally viewed in this society and in others to permit us to make admittedly rudimentary but significant assessments; for example, that in American society one is generally considered better, superior, or more worthy if he is: White rather than Negro; Male rather than Female; Protestant rather than Catholic or Jewish; Educated rather than Uneducated; Rich rather than poor; White Collar rather than Blue Collar; of Good Family Background rather than Undistinguished Family Origin; Young rather than Old; Urban or Suburban rather than Rural Dwelling; of Anglo-Saxon National Origin rather than any other; Native Born rather than of Foreign Descent; Employed rather than Unemployed; Married rather than Divorced (pp. 26-27).

The development of social strata occurs through a number of processes and along a number of different dimensions. Tumin (1967) described five specific characteristics of stratification. Stratification is social and not biological in nature. It is always a result of a complicated interaction of human and cultural choices and is independent of biological traits or characteristics. Social stratification has a long history of existence. Examination of ancient societies reveals that they had definite processes for

differentiating individuals and goods. The concept of social stratification is ubiquitous both within and among nations. There are various forms and quantities of stratification systems. Stratification always leads to consequences in terms of its impact on life chances and life-styles.

Researchers have proposed dimensions along which societies are stratified. Kohn and Schooler (1983) cited occupational status and education as the two most important variables used to define one's position within a socially stratified system. The effect of the interaction between occupational status and education on social position is the heart of Kohn and Schooler's thesis. They state, "the relationships of social stratification to values and orientations result mainly from the greater opportunity to be self-directed in one's work that is afforded by higher educational level and occupational position" (p. 2).

Tumin (1967) delineated the four processes by which stratification occurs within a society. These are (a) differentiation, (b) ranking, (c) evaluation, and (d) rewarding of property, power, and psychic gratification. Differentiation is the process of defining social positions by assigning a distinctive role with specific rights and responsibilities according to that role. Ranking or the assessing of status for a particular social strata is determined according to personal characteristics, trained skills and abilities or the consequences, effects or social functions of the position. The evaluation process refers to ascribing a value of prestige or preferability to a

specific social role. Rewarding of property, power and psychic gratification refers to the rules which each society has established for the way that such desired features are distributed among the members of the society.

Viewed from the larger context of social stratification, it is easy to see that the choice of a career is an important and complex decision. It is one which will have a direct impact on the roles a person fills, the status ascribed to that person according to the roles selected, the amount of prestige given to the selected role and the amount of rewards provided for filling a particular role. Career selection is a decision over which the individual has a great deal of control when compared to the control one has over race, gender, family of origin and other major determiners of position within the social strata. The specific variables selected for this study were chosen in order to gain a better understanding of the influence of choice on early career selection processes.

Psychological Dimensions of Occupational Choice

The field of psychology has contributed greatly in the career exploration and decision making process through guidance and counseling efforts as well as research on such concepts as locus of control, self-efficacy and career interest, and development of instruments to measure these concepts. The study of career interest and the subsequent creation of instruments to accurately measure this construct has a long history in the field of psychological measurement. One of the instruments which is most

frequently used in the field of psychology is the Strong Interest Inventory. The wide use of this instrument and its long-standing history attest to the importance of studying the factors which influence the selection of an occupation. The massive body of occupational interest research and continued use of career interest inventories are important indicators of a consumer need for accurate assistance in the process of choosing a career in large part because of the connection between occupation and social status.

Occupational interest measurement.

Occupational interest is an important factor in every theory of vocational development (Tolbert, 1980). Relationships have been shown to exist between occupational interests and job choice, job satisfaction and job tenure (Klein & Wiener, 1977, Bartling & Hood, 1981, Feldman & Meir, 1976, Zytowski, 1976, Enderlein, 1975). Accurate assessment of occupational interest is a fundamental step in the process of career choice. As with all assessment instruments, the validity of the measuring device is critical to the effectiveness of the career exploration process. The valid interest inventory must have some usefulness relative to its purpose. The purpose of an occupational interest assessment instrument is to show that the instrument can differentiate between groups either in degree of job satisfaction or congruence with eventual occupational choice. An instrument is limited in its effectiveness if it is unable to differentiate in

either of these ways and especially if it does not adequately differentiate for a particular group of people.

The Strong Interest Inventory (SII) of the Strong Vocational Interest Blanks (SVIB) is an instrument which was designed to assess occupational interests of the population in general. It is one of the most widely used assessment tools in the field of psychological measurement (Tolbert, 1980). It was revised in 1985 and is referred to in the literature by the names of the Strong Vocational Interest Blank (SVIB) or the Strong-Campbell Interest Inventory (SCII) or the Strong Interest Inventory (SII). The SII is based on 65 years of empirical research conducted in the field of occupational interest measurement and is theoretically grounded in Holland's personality typology theory. In addition to assessing an individual's occupational interests, it is also used to measure a person's (a) interest in being around different types of people, (b) interest in various leisure activities, and (c) interest in working or living in a variety of environments (Hansen, 1986). The Strong Interest Inventory measures occupational interest on three levels of specificity, General Occupation Themes, Basic Interest Scales and Occupational Scales.

Response style to the Strong Interest Inventory.

The usefulness of occupational interest information derived from the Strong Interest Inventory (SII) depends on the response style, or the manner in which the individual responds to the items presented in it. If a specific segment of the general population has a response style which is different

from that of the general population, it is important to examine this phenomenon to determine whether this occurrence represents an artifice of the instrument or characteristics of the individuals taking the inventory. It is also important to investigate such a phenomenon because of the connection between occupation and social position. Specifically, studying the response style of a given group of the population and the factors which influence that response style can give us valuable data that can inform other researchers who are examining entry into various social strata.

In reviewing the literature for this research there were only a few studies which focused primarily on the Response Style of respondents to the SII. Even more rarely did authors mention the respondents' Response Style in the numerous published articles where the SII has been used.

This research will focus on the Response Style of a specific segment of the college student population, the student athlete, in an attempt to isolate those variables available from the students' academic record which discriminate the profiles of student athletes who fall in a low Like Preference (LLP) response style category from those who fall in a Regular Like Preference (RLP) category.

The SII is one instrument used to calculate an individual's occupational interests. It is based on Holland's theory of vocational choice. A discussion of Holland's theory is included in order to clarify the theoretical implications of the findings of this study.

Holland's vocational theory.

One of the most widely used and researched vocational theories is that developed by John L. Holland (1966; 1973). The basic assumptions underlying the principles of the theory are that the choice of a vocation is an expression of an individual's personality. According to Holland's theory, in our culture, most people fall into one of six personality types. The personality types are: realistic, investigative, artistic, social, enterprising and conventional. There are six kinds of work environments which are labeled by the same six names as the personality types. The work environments each have specific physical settings with particular problems and stresses. People seek out environments where they can demonstrate their skills, knowledge and abilities to their maximum degree. An interplay between personality and work environment determines work behavior.

Included in Holland's theory is the notion that those inventories which assess vocational interests are also personality inventories. Vocational stereotypes yield valuable and reliable psychological and sociological information. People in similar vocations have similar personalities and histories of personal development and because of that they respond to situations in similar ways and will create specific interpersonal environments. The congruence between an individual's personality and work environment are important variables in creating vocational satisfaction, stability, and achievement.

Definition of Terms

The following terms are used throughout this study. Abbreviations are also substituted for some of the terms and are explained here.

Strong Interest Inventory of the Strong Vocational Interest Blanks (SII) - The 1985 version of the occupational interest assessment instrument. A list of the scales which comprise the SII appear in Appendix A.

Strong Vocational Interest Blank (SVIB) - One of the earlier versions of the SII.

Strong-Campbell Interest Inventory (SCII) - The 1974 revision of the Strong Vocational Interest Blank which first combined the separate gender versions into one form.

Strong - The shortened name for the SII.

Holland Codes - Six occupational environments which match the personality types described by Holland in his theory of occupational development. The six codes are Realistic, Investigative, Artistic, Social, Enterprising, and Conventional.

General Occupation Themes (GOT) - The broadest level of occupational information reported on the SII profile. There are six themes which match the occupational environments delineated in Holland's theory. These themes are Realistic, Investigative, Artistic, Social, Enterprising and Conventional.

See Appendix A.

Basic Interest Scales (BIS) - Measures of the respondent's similarity of interests in major areas or occupational groupings which fall in one of the six GOTs. Broad areas of interest include mathematics, sales, medical service and adventure. There are 23 Basic Interest Scales in the SII. See Appendix A.

Occupation Scales (OS) - Measures of the similarity of the respondent's interests with those of incumbents from 131 separate occupations. Occupations represent all six of the occupational environments described by Holland. The 131 occupations listed span an array of training level requirements from vocational training to college education. See Appendix A.

Administrative Indexes - Clerical checks to ascertain the accuracy of the scoring of the profile. The five separate indexes scored are the Total Responses, Infrequent Responses, Like Preferences, Indifferent Preferences and Dislike Preferences indexes. Calculations of Like Preferences, Indifferent Preferences and Dislike Preferences are reported in the form of percent of total items in seven separate categories: occupations, school subjects, activities, leisure activities, types of people, preferences, and personality characteristics.

Like Preference (LP) - The percent of the items in each of the seven separate categories of the SII which the respondent liked.

Low Like Preference (LLP) - Positive endorsement of 20% or less of the 325 items of the Strong Interest Inventory.

Dislike Preference (DP) - The percent of the items in each of the seven categories which respondent disliked doing or being.

Indifferent Preference (IP) - The percent of the items in each of the seven categories to which the respondent indicated an indifference.

Response style - A compilation of the way the respondent answered all of the items. Scores are listed separately for the seven areas of items listed in the administrative index of the SII. Percentages of the number of items the respondent liked, was indifferent about, or disliked are reported. A total score is also reported of percent LPs, IPs and DPs in all seven of the categories.

Student athlete - A student who competes on an intercollegiate athletic team for a 4-year university.

Student Record - A record of the student's academic information beginning with high school data and including high school grade point average (GPA), a summary of high school courses taken, college entrance exam scores, high school deficiencies and demographic data such as hometown, parent/guardian name, high school name and current college transcripts.

See Appendix B.

Problem Statement

Examination of the SII profiles of 207 student athletes from an NCAA Division I university in the Southeast indicated a pattern of response style in which approximately 32% of those respondents fell in a Low (less than

20%) Like Preference (LLP) category. Having a relatively large selection of SII profiles which fall into the LLP category presents an opportunity to analyze the factors which are related to such a response pattern and promotes a description of the LLP phenomenon which has not to date been reported in the literature, especially with the 1985 version of the instrument.

It is possible that the LLP response style is associated with a number of different variables. These could include academic achievement and background, family structure, socio-economic status, and other demographic data. There is a need to conduct research which explains the specific response style patterns, especially when these patterns are distinct for a specific segment of the population.

An overall lack of research conducted with the 1985 revision of the SII has been noted (Hansen, personal communication, February 8, 1994). Few reports in the literature address the response style of either individuals or groups of respondents. There is no empirical evidence in the literature which gives any guidelines for interpreting the response style of a given group of respondents. Finally, there is no research on the response styles of collegiate athletes as measured with the 1985 revision of the Strong Interest Inventory. The scarcity of research in these areas and the widespread use of the Strong with this portion of the college population makes it necessary to study the response styles of collegiate athletes to the 1985 revision of the SII.

Hypotheses

Given the paucity of research in this area, this study was designed to test the following hypotheses:

1.) The response style on the Strong Interest Inventory of student athletes at an NCAA Division I university in the Southeast is the same as the response style of the non-athlete population from the same university.

2.) No subset of the variables: race; gender; parent gender; composite college entrance exam score (ACT/SAT); total academic credits from high school; high school grade point average; size of high school locale; high school graduating class size; or sport type, reported on the student's record, discriminates profiles with a Low Like Preference response style from profiles with a Regular Like Preference response style.

A thorough review of the literature relevant to the variables selected for this study appears in Chapter II.

CHAPTER II

Literature Review

The scientific literature relevant to the factors included in this study has been reviewed and is summarized.

Strong Interest Inventory Administrative Indexes

There is a wide array of research available using data collected with the Strong Interest Inventory (SII). However, little research has been conducted which specifically indicates that the administrative indexes of profiles were analyzed prior to their interpretation or the subsequent analysis of the empirical data (Hines & Fretz, 1980). Though the administrative indexes are not validity measures, it is critical that the overall response style of the respondent be addressed both in the research and in clinical interpretation by considering the information contained in them. Failure to analyze the administrative indexes which give totals for Like, Indifferent and Dislike preferences can lead to erroneous conclusions about the interests of the respondent because the Strong is constructed so that only Like preferences are weighted in the scoring of the GOTs and the BISs (Hansen & Campbell, 1985).

Response Style

There is some evidence that the way that a person responds to questionnaires is a function of ability level. Extremism in response set was studied by Hazelwood (1989). The author compared the ability levels of 3858 students from northern England to the way in which they responded

to a 24-item Likert-style program evaluation questionnaire. In both the original study and a separate replication, those students who scored lowest on two distinct ability measures selected the most extreme responses. In addition, the kurtosis of the distributions of scores of the questionnaires of the low ability groups indicated flatter distributions than those of the high ability groups.

The dynamics of the response styles of two groups ($N = 712$ and $N = 836$) on the OSs of the Strong were investigated by Creaser (1985). He noted that when the response style is greatly skewed, the OSs reflect more about the way individuals responded to the instrument rather than their true interests.

Using a previous version of the SII, Ohlde (1979) found that the number of Like and Dislike Preferences discriminated between three groups of 30 students each who scored at high, middle and low levels on a measure of self-esteem. High and middle scorers on the self-esteem scale had greater numbers of Like Preferences, whereas the low scorers on the self-esteem measure had greater numbers of Dislike Preferences.

Broday (1990a) studied the correlations between percentages of preferences which constitute a response style and scores on the OSs of both men and women. The highest scores on the OSs of a group of 70 male university students with high LPs and low IPs were in leadership occupations. The highest scores on the OSs of men with low DP were in

the health related occupations. The correlations between response style percentages and scores on the OSs for 153 women were also examined (Broday, 1990b). High LPs for women were associated with social and leadership positions. High IPs for women were associated with scores on the OSs in the Armed Forces and health-related occupations areas. Low DPs for women were associated with OSs in the Armed Forces and leadership occupations.

The effect of response style on the relationship between scores on the introversion-extroversion and academic comfort scales of 722 freshmen college students was investigated (Creaser, 1986). By including a correction for response style the author acknowledged its influence on the subsequent scoring of other SII scales.

Strong Interest Inventory and Groups

In addition to providing occupational interest data for individuals, the SII also provides descriptive information about groups. The authors cited the following ways in which the instrument can be used to further understand the occupational interests of special populations: (a) to describe the occupational characteristics of specific occupational groups, (b) to measure the ways occupation interests change in groups, (c) to measure the nature of change in institutions, (d) to describe general societal trends, and (e) to describe cross-cultural influences in the area of occupational interests (Hansen & Campbell, 1985).

The literature which reported on research which had been conducted using the SII with groups of people who are similar in characteristics to those of this study's sample was reviewed and is summarized in the section which follows.

Gender and Ethnic Groups

Summaries of research in which the SII was used to measure the career interests of ethnic group members is included because of its relevance to the sample being studied in this research. The targeted sample for this study is student athletes and it has been shown that a large percentage of the student athlete population at NCAA Division I schools is from minority groups (Lederman, 1992).

Tomlinson and Evans-Hughes (1991) used the 1985 revision of the SII to measure the occupational interests of 77 Caucasian, African American and Hispanic American males and females. Analysis of the respondents' scores on the six GOTs indicated that the only difference between genders was on scores on the realistic theme, where males scored higher than females. There were no differences on the GOTs between the three ethnic groups. The authors noted that 49% of the sample surveyed for this study had flat or undifferentiated profiles, and hypothesized a connection between the noted lack of differentiation and academic comfort. No explanation was made for the lack of differentiation of the profiles.

Summarizing the research using the SII with Black respondents, Carter and Swanson (1990) noted a number of important deficiencies. These deficiencies included: (a) lack of research on Black respondents using the most current revision of the SII, (b) lack of studies with Black female subjects, (c) use of Black samples which are unrepresentative of the general Black population, (d) questionable statistical analyses with small samples, and (e) focus on between-group rather than within-group variables.

The Occupational Scales of the SII were shown to have criterion validity for a sample of 28 female and 21 male American Indian college students (Haviland & Hansen, 1987). A high degree of congruence between the Occupational Scales on the SII and the college majors chosen by these students was established.

Student Athletes

The student athlete is one identifiable group on the college campus which may use the SII for a variety of purposes. Several researchers have identified aspects of the student athlete experience which fit the definition for a culture (Sedlacek & Adams-Gaston, 1992; Telander, 1989; Zingg, 1982). Membership in this culture has its costs as well as benefits. One of the costs may be in the systematic lack of preparation for or consideration of careers outside of the athlete's immediate role as competitor.

Participation in intercollegiate athletics may have a detrimental effect on the

athlete's ability to formulate mature educational and career plans, especially when compared with other non-athlete students (Blann, 1985).

The specific occupational interests of student athletes were measured using an earlier version of the SII. Miller, McKee, Springer and Soper (1985) measured the occupational interests of 33 varsity football players from two medium sized universities in the south central United States. No report was made of an analysis of the response style for this sample. Varsity football players' GOT scores fell in the Realistic and Conventional areas. The usefulness of the results of this study are limited due to the small sample size, selection of football players rather than athletes in general, failure to report on data available in the administrative indexes, and the appearance of the 1985 revision of the SII. There is a need to conduct further studies with the broader athlete population using the 1985 revision of the SII, a larger sample including both males and females, and White and African American students.

Variables Associated with Occupational Choice

Race

One of the most obvious dimensions by which the United States's society is stratified is race. As previously stated by Tumin (1967), race, gender, and the family background one is born into are factors which the individual cannot control but which will have a great impact on later social status. Since one has no control over one's own race or national origin, the

discretionary control which one exercises over other factors such as education and vocation can have a significant impact on a subsequent position within the society. The research which examines the patterns of vocational choice of members of different racial groups has significance for understanding the society as a whole. The following is a summary of the empirical data compiled to date regarding the vocational choice patterns of various racial groups.

Slaney and Brown (1983) compared the ratings of 48 White and 48 Black college males who were matched according to their Socioeconomic Indicator (SEI) scores. Career choice variables were the dependent measures. Differences were found for race, SEI score and the interaction between race and SEI score for preferences for artistic, realistic and investigative vocational personality types as measured by the Vocational Preference Indicator. Specifically, more White males from the high SEI group expressed preference for investigative jobs. More Black males preferred artistic jobs, and those preferring realistic jobs were more often from low SEI groups. There were also significant racial and SEI differences in the amount of career indecision experienced by participants in this study. White males experienced more career indecision than their Black counterparts.

The effects of career self-efficacy expectations on the participants' perceived range of career options were examined by Rotberg, Brown and

Ware (1987) using a sample of 152 community college students. Two separate regression analyses showed that career interest predicted the perceived range of the subjects' career choices as well as their career self-efficacy expectations. Race and socioeconomic status were not significant predictors of either range of career choice or self-efficacy expectations.

Sewell and Martin (1976) investigated the patterns of occupational choices of Black male adolescents as well as the relationship between locus of control and occupational choice for the Black adolescent males. The sample consisted of 97 Black males in their junior or senior years at an urban, inner-city high school. All participants were members of a select group of students identified as college bound. Students' career interests as measured by the Hackman-Gaither Vocational Interest Inventory (revised edition, 1968) differed significantly from those of the normative sample of 2000 male and female, middle-class high school students. The participants' interest scores in artistic, health and welfare, and business-clerical fields were higher than comparable cohort scores from the normative sample.

O'Brien and Walsh (1976) investigated the concurrent validity of the Self-Directed Search (SDS) and the Vocational Preference Inventory (VPI) for non-college-educated, working Black males. There was some limited evidence that Holland's theory was valid for this sample of working men.

The concurrent validity of Holland's theory was also tested by studying a sample of 151 employed, college-educated Black men

representing the six occupational environments described by Holland (Sheffey, Bingham and Walsh, 1986). The occupational interest measures used were the Self-Directed Search (SDS) and the Vocational Preference Inventory (VPI), both based on Holland's theory of personality typology and work environments. Researchers found evidence of concurrent validity for the SDS and the VPI for working college-educated Black males. The authors cautioned that further study is needed before a strong case for claiming concurrent validity of these instruments could be made for Black males due to the fact that only one occupation from each environment was included in the study.

Pallone, Hurley and Rickard (1973) studied key figures who had influenced the respondents' decisions about their expected occupations. The subjects were 73 Puerto Rican, 211 Black and 200 White high school females from a major metropolitan city. Strong similarities between the key sources of influence listed by members of three ethnic groups were noted. Participants' mothers were the most frequently cited key person to influence their career decisions, regardless of ethnic group membership. Puerto Rican and Black girls regarded their school counselor as a key source of career information more frequently than did their White counterparts.

The identity and role of significant others who influenced the career decisions of low-income, rural Southern youth was examined in a longitudinal study conducted by Peterson, Stivers and Peters (1986). The

sample consisted of 273 White and 117 Black, male and female youth. The respondents were asked to indicate each person who had talked and given advice to them about their future job plans. Results showed there were no consistent race differences regardless of the developmental period that the respondents were in at the time of the study. There was no evidence that rural Black youth had experienced a deficit of career input from their families. There was some evidence that both Black and White youth went beyond the confines of their families to teachers or peers for advice as they grew older.

The effects of ability, race and socioeconomic status on understanding of the factors which influence occupational choice of southern youth was investigated by Dalton and Bledsoe (1980). Race was a significant predictor of the students' perceived occupational choices. Black youth thought specific skills and capacities, and values such as prestige, travel and independence were more important to making career decisions than the White respondents.

Hayes (1989) used a sample of 3400 males aged 14 to 24 to study the factors which discriminated men in female-concentrated occupations from those in traditional male-concentrated occupations. Contrary to previous studies, the results of this study showed that men in female-concentrated occupations were no more likely to be from one racial group,

one socioeconomic group, one occupational status or educational level than from any other groups.

No racial differences were found when studying the realism of career choices of university level students (Pelham & Fretz, 1982). Drawing from a sample of 39 Black males and 50 Black females and 69 White males and 72 White females from a predominantly White, state university, researchers determined the career choices of the participants were unrealistic regardless of the race of the respondent. Specifically, all respondents were aspiring to careers which had skill requirements above the level of skills that they possessed. The Black participants were found to have significantly less occupational information than their White counterparts. The Black students were more confident of their ability to attain their expressed choices, even though these expressed choices fell into an unrealistic category.

Gender

A review of the current literature which addresses the underlying dimensions in which gender membership affects the selection of occupations or educational paths is included in order to illustrate salient gender-specific occupational choice issues which may have an impact on the present study.

Gender membership was shown to have a significant effect on choice of college major, occupational category, part-time or full-time work status, and salary level for a group of 501 disabled university graduates (DeLoach, 1989). Disabled females earned the majority of their degrees in

the areas of Education, Rehabilitation and Allied Health Sciences, and Social Work, whereas disabled males earned more degrees in Business, Computer Science and Engineering. The occupational fields in which the majority of the disabled male participants were working were administrative and managerial, general business, computer science, law, engineering, and medicine. The occupations held by the disabled female participants were in the areas of the helping professions and clerical/secretarial work. Disabled female participants were more likely than males to have part-time rather than full-time employment. The average salary level for the majority of the female participants was significantly lower than that of the male participants.

The personality characteristics and attitudes of 544 gifted females were compared according to type of career path taken and the decade of high school graduation (Walker, Reis and Leonard, 1992). Differences in personality traits and attitudes were found across career path types as well as graduation year. Gifted women who chose to follow the homemaker career path described themselves as happier and less depressed, less ambitious and less adventurous than the women who chose a professional career path. Consistent across all eight decades which were studied was concern for personal, educational and vocational growth.

A comparison of male and female scores on subscales of the Career Decision Scale (CDS) was completed by Vondracek, Hostetler, Schulenberg

and Shimizu (1990). Data from a sample of 222 male and 243 female high school students revealed that gender membership affected the scores on the four subscales of the CDS which represent measures of career indecision. Males scored higher than females on Diffusion and Barriers indicating that they experienced more confusion, discouragement and lack of information about making career decisions. Males also were more strongly aware of external barriers to career choice or had less interest in making a career decision than the females in the sample.

Vroom's expectancy and valence theory as applied to career choice was researched according to gender membership by Brooks and Betz (1990). Distinct scores according to gender membership were found in expectancy or occupational choice, valence or occupational preference and likelihood of choice regarding male-dominated and female-dominated occupations. Based on the ratings of six male-dominated and six female-dominated occupations, the participants' expectancy, valence and choice scores were consistent with their gender. Males preferred and chose male-dominated fields and females preferred and chose female-dominated fields.

Blustein (1988) investigated the relationship between career choice crystallization, vocational maturity, age, and gender membership from a sample of 158 community college students from the northeast. Though both age and gender have been associated with vocational maturity in past research, (Jordaan & Heyde, 1979; Thompson, Lindeman, Super, Jordaan &

Myers, 1984) the results of this analysis showed that the combined variables of age and gender only contributed 6% of the variance of the model.

A qualitative research approach was used to study the manner in which masculine identity develops for men through the experiences of participation in organized sports (Messner, 1989). Thirty former athletes were interviewed by the researcher who used an open-ended interview methodology and focused on the participants' experiences in organized sports during high school years. Two social status groups within the sample were identified with ten members in the high social status group and 20 members in the low social status group. All participants found participation in sports to be a means to achieve a male identity. Most male athletes indicated that their athletic strivings were about competing for status within their gender rather than being a display of superiority over women. The low-status participants found the status and respect that they found through sports was transitory and did not continue with them once they quit competing. Thus, athletics did not serve them as a means for upward social status mobility. The high status men viewed their successes in sports as providing important career links between themselves and other men.

Tusin (1991) researched the connection between social and academic self-concept and choice of a teaching career of 2441 females who had responded to a survey at the beginning of their college years and nine years

after graduation and employment as teachers. Evidence of a limited relationship between academic and social self-concept and selection of a teaching career was demonstrated. The connection was stronger for elementary rather than secondary teachers. Finally, selection of a career as an elementary school teacher had a negative effect on the female's subsequent social self-concept.

The career self-efficacy expectations of 173 females and 166 males from Canada were compared according to socioeconomic status (SES) and gender (Hannah & Kahn, 1989). The results were that the gender of the participant was positively related to the gender composition of the career selected. Females were more open to selecting careers which were either female-dominated or male-dominated. The males overwhelmingly selected male-dominated careers. SES level differentiated the gender orientation of the participants' career selections. Females from the high SES group more frequently selected male-dominated careers than those females from the low SES group. No significant difference between genders was found on self-efficacy expectations. Females were just as confident of their abilities as their male counterparts. Both genders reported highest self-efficacy ratings when the gender composition of the career selected (male-dominated or female-dominated) was consistent with their gender.

Fitzpatrick and Silverman (1989) explored the factors influencing the selection of traditional and non-traditional careers of 113 high achieving

females. Comparing women majoring in engineering, science, and humanities and social science, the results indicated that women who chose engineering or non-traditional careers more frequently had a father who was a scientist or an engineer and had stronger parental support for their career choice. Women majoring in humanities and the social sciences more often had a college professor or friends who were influential in making their career selection. High school teachers had the most influence on the women's decision to enter the field of science. Job availability and income level had a stronger impact on the decision to enter engineering and science curriculae than for those women who were in the humanities and social sciences.

The career aspirations and expectations of 66 girls and 72 boys were analyzed at two separate times, with a five year intervening time lapse (Sandberg, Ehrhardt, Ince & Meyer-Bahlburg, 1991). The ages of the subjects ranged from eight to thirteen during the first phase of the study and thirteen to eighteen at the time of the second phase of the study. At both phases of the study, boys nominated significantly more occupations which were same-gender dominated than the girls. At phase two, the girls' expected careers were clearly influenced by gender composition of the occupation. Girls chose careers which were female-dominated.

Race and Gender

The factors of race and gender have often been studied together. As both of these variables are critical to the present study, a review of the current literature which addresses these factors is included.

A sample of 251 Japanese females was studied (Matsui & Onglatco, 1992) to determine the factors which influenced subjects' career orientedness and motivation to attend the university. For Japanese females, academic achievement, career decision-making self-efficacy, and motivation to enter the university were positively correlated. Those females with higher levels of academic achievement had higher career decision-making self-efficacy and higher motivation to enter the university. Also, instrumentality, defined as the averaged score on the masculinity items from the Bem Sex Role Inventory, was positively correlated with career decision-making. Career decision-making self-efficacy was positively related to motivation to attend the university and negatively related to career choice anxiety. Finally, motivation to enter the university was negatively related to career choice anxiety.

Using a sample of 60 students (15 Black men and 14 Black women and 19 White men and 12 White women) Henry, Bardo, Mouw, and Bryson (1987) studied the effect that race and gender had on responses to the Self-Directed Search (SDS). The students were enrolled in a special program designed to identify and support talented minority students so as to increase

the representation of minorities in the health professions. No differences in SDS scores between races were discovered. There was, however, a significant difference between genders in the way that they responded to the SDS. Specifically, the female participants' responses were significantly lower than the males' in the Investigative and Realistic areas. According to the Holland typology system, physicians' interests are in the areas of Investigative, Social, Artistic and Enterprising tasks. Female participants' expressed interest in investigative type activities was significantly lower than their male counterparts' scores, which may put them into situations of mismatched career interests and actual job placement.

Race and gender differences were found among attitudes regarding the sequencing of career and family tasks for women (Sullivan, 1992). A survey of work and family issues was conducted with 203 undergraduate and graduate students in business at a metropolitan university. Fifty-three percent of the sample were male and 84 percent were White. The participants were asked to describe their opinions about the timing of marriage and career; the timing of career and children; simultaneously balancing career and family; and the choice of a career with no children. There was a gender difference for three of the four sequencing beliefs. Men more often endorsed a belief that women who have careers should not have children. Women more frequently endorsed beliefs in a woman's ability to balance a career and family and that a woman should be established in a

career before having children. A racial difference was found for the belief that women should have careers before marriage with minority students holding this opinion more frequently than majority participants.

Hill, Pettus and Hedin (1990) conducted a series of three studies which investigated the influence of factors which have an impact on the continued underrepresentation of minorities and females in the science professions. The first study in this series analyzed the responses to the Science Career Predictor Scale (SCPS) of 522 male and female, Black and White middle and high school students. The female participants' lack of interest in science and math careers explained the gender differences in the pursuit of these fields for middle and high school female students. Black students scored higher than the White students on participation in science activities, teacher encouragement, completion of science and math courses and total score on the SCPS and yet they are still not enrolling in science related majors at the university level. Personal acquaintance with a mathematician or scientist was a critical factor in the continued pursuit of science and mathematics careers for Black students.

The second study in this series was designed to evaluate the relationship between critical thinking ability and pursuit of science careers. The sample consisted of 81 male and female, Black and White high school students. The Watson-Glaser Critical Thinking Appraisal instrument was administered to the participants in addition to the SCPS used in the first

study. Racial differences on scores on the critical thinking dimension were found, with White students scoring significantly higher than Black students. A deficit in critical thinking skills for Black students may be a primary factor explaining the low rate of pursuit of science related careers for Black students, since critical thinking is a significant element in math and science occupations.

The third study in this series used an all-Black sample of 75 male and 110 female students from a historically Black university. Participants completed the SCPS. Female participants indicated a lower rate of interest in science hobbies and activities and a general lack of interest in science-related careers. The significance of personal acquaintance with a scientist or mathematician was again noted.

The factors which would predict a female's choice to pursue a career as a homemaker were studied by Falkowski and Falk (1983). Responses to the National Longitudinal Study of the High School Class of 1972 of an all-female subsample of the survey's respondents consisting of 463 Black and 4227 White females was used. White females chose a career in homemaking approximately three times more frequently than Black females. Regardless of race, those females who selected a career as a homemaker were more likely to have: (a) a rural residence, (b) a father in a manual labor occupation, (c) a mother who never worked outside the home, (d) been in nonacademic tracks in high school, and (e) had low scholastic performance

rankings. Racial differences were found on the social psychological dimensions of self-concept, locus of control and life importance. Black females expressed higher self-esteem than White females, although those who planned to make homemaking a career had lower self-esteem than those planning to enter the work force. Black women in both the homemaker and professional career categories had a more external locus of control than the White women in the same categories. Racial differences were shown on the life importance items in the areas of money, work, opportunities for children and correcting inequalities, with the Black respondents valuing these options more highly than the White respondents. White women valued having strong friendships more highly than the Black female participants.

The perceptions of career options of rural American Indian, White and Hispanic high school students were explored by Lauver and Jones (1991). Relying on data from a sample of 467 males and 426 females it was found that females perceived themselves to have a wider variety of career options than males, who tended to rely on traditionally male-dominated professions as their only source of career options. The females' self-efficacy ratings were equal to or higher than the males in reference to their ability to perform jobs which are predominantly male-dominated occupations. Differences in perceptions of career options were also noted along ethnic lines. The minority students perceived their options to be broader than the White

students. American Indians' self-efficacy ratings were lowest on 7 of the 18 occupations which were surveyed.

Race-Gender Interaction

In reviewing the research on this topic it was apparent that all studies are dealing with a race-gender interaction, but not all were designed to systematically examine the impact of this interaction on occupational choice. The research articles which follow are included because they have recognized the need to specifically isolate and study the influence of the interaction between race and gender on occupational choice issues.

A sample of 1750 rural male and female, Black and White, sixth through twelfth grade students were surveyed using a questionnaire designed to assess the accuracy of Ginzberg's career development theory regarding occupational expectations and aspirations (Kelly and Wingrove, 1975). Black females' expectations regarding their intentions to continue their education beyond high school were higher than those of Black males, and both male and female White students in all grades but the ninth. Conversely, Black males scored consistently lower than Whites and Black females in their educational expectations. The expectations and aspirations of both racial and gender groups remained high during the early tentative choice period which corresponds to grades six through 11. Males' range of career choices began to drop as they entered the stage of realistic choice making, reflecting a more accurate awareness of their opportunities in the

world of work. Females from both races tended to hold onto higher occupational aspirations until the twelfth grade, somewhat later than their male counterparts. Regardless of race, the aspirations for professional and managerial positions were disproportionately high relative to the number of such positions available.

Burlew (1977) proposed a theoretical model based on a thorough review of the literature of the motivational and attitudinal factors which influenced the career choices and educational attainment levels of Black females. In the proposed model, educational attainment and career choice behaviors of Black females are influenced by six antecedent variables. The antecedent variables are mediated by three intervening variables. The antecedent variables which were proposed were mother's employment history, knowledge and exposure to employment, attitudes about women's roles, perceptions of attitudes of significant others about appropriate sex-role behavior, others' expectancies, and self-concept of ability. These variables are mediated by the individual's aspirations, expectations and perceptions of social consequences. Further research is necessary to test the accuracy of this proposed model.

The work values which influence the choice of white or blue-collar jobs were surveyed from a sample of 325 Black, Hispanic and White females (Padavic, 1992). Regardless of race, economic need was the strongest predictor of choice of a blue-collar job, since these had a higher rate of pay

than the white collar jobs. Race was also a strong predictor, with Black females choosing blue-collar positions more frequently than White females. Those women, regardless of race, who had participated in sex-atypical play as a child were more likely to opt for blue-collar positions.

Marshall and Miller studied the aspirations of 191 female and 152 male, rural Mexican-American youth (1977). The results from this sample support previous research with Mexican-American youth which indicated that members of this group aspire to occupations which require college graduation, though only a minority of their parents had attained such positions. No females, and only 20% of the males aspired to the lowest status occupations. Females' educational expectations matched their occupational aspirations, though the males' educational goals were incongruent with their occupational aspirations.

Family Structure

The concept of family structure is defined in the literature in a number of different ways including number of parents in a household, single-parent households, female headed households, and male-headed households. In general, the family has an influence on decisions regarding the work life of its members. The specific dynamics of the family's influence on work-life decisions has been examined by a number of teams of researchers.

One dimension of family dynamics is its closeness. Hoffman, Hofacker and Goldsmith (1992) explored how the perceived closeness of

parents of undergraduate and graduate business school students influenced their occupational choices. A sample of 260 seniors in business and MBA students was surveyed. Though students reported feeling closer to their mothers, the nature of the closeness with the students' fathers was found to have a stronger influence on the participants' occupational choices. Neither father's level of success attainment nor income level had a significant effect on parental influence on the participants' occupational choices.

The family's level of functioning was investigated in regards to its impact on the career development of adolescent members (Penick & Jepsen, 1992). Using a sample of 215 eleventh grade students and their parents, it was found that the perceptions of how the entire family interacts has a more powerful impact on the career development of its adolescent members than academic achievement, gender, and socioeconomic status. The perceptions of the family's functioning by family members' was a significant predictor of vocational identity or certainty of occupational choice and was a stronger influence on this factor than gender, socioeconomic status, and educational achievement.

Parrillo (1991) conducted a cross-cultural analysis of the impact of the family on various aspects of the lives of immigrants to the United States. Reviewing research on immigrant families from a variety of different cultures, Parrillo noted that the family had a number of ways in which it

significantly impacted the occupational values of its members. By promoting an attitude of togetherness and collective welfare, the family members felt that the unit could survive only through the combined efforts of its individual members. The family defined who should and should not work, and under what conditions work should occur. Regardless of the culture, the family served to function as an employment recruiter, trainer and placement coordinator. Family members were recruited by other family members to work in the same industry or plant as another relative. Often one relative would train another relative to perform the same job.

McDonald and Jessell (1992) summarized the literature in the area of the impact of the family on the work attitudes of its members by surveying 242 Caucasian seventh- and eighth-grade students. There was little evidence which explained the nature of the relationship between single-parent households and occupational attitudes and perceived occupational abilities. Adolescents from single-parent homes tended to have a limited list of possible careers from which to choose, and had doubts about their abilities to perform the duties needed for those careers. Male adolescents from low socioeconomic environments with a single parent heading the household were noted to be at risk for not actualizing occupational attitudes to enable them to become productive adults.

Mueller and Cooper (1986) surveyed 1448 persons aged 19 to 34 and found that persons raised by single parents (primarily single mothers) tended

to have lower educational, occupational and economic attainment during early adulthood than their counterparts from two-parent families. When the economic disadvantage of being from a single-parent household was controlled, the persons raised in female-headed single-parent households tended to have lower status occupations.

Rosenthal and Hansen (1980) studied 559 adolescents from western New York and noted that adolescents from single-parent families had significantly lower occupational aspirations and school achievements than those of adolescents from two-parent families. These authors suggested that the father frequently fills the role of mediator between the family and the world of work and that when the father is absent, this role goes unfilled. Thus, adolescents from father-absent families would lag behind families where the father was present and filled the role of family-work mediator.

Biographical interviews of 265 individuals divided into three groups of adults who grew up in different eras in Germany yielded information about the impact that the structure of the family had on a variety of adult work behaviors (Langenmayr & Schubert, 1988). Early family situations were shown to impact the adults' later occupational behaviors. Small positive correlations existed between the loss of a parent and number of employments held; number of changes of employers; and number of changes of employments the subjects had as adults. A small, negative

correlation existed between the loss of a parent and the average duration of employment of the adult subject.

Parsons (1990) used data available through the Canadian Mobility Study of approximately 45,000 non-institutionalized Canadians over the age of 18 to study the effects on adult behaviors of being raised in single-parent or two-parent Canadian homes and found that males and females from two-parent households attained the highest levels of occupations when compared with males and females from single-parent homes. Males who were raised in female-headed households had the lowest occupational attainment of all groups. Females who were raised in male-headed households had the lowest level of occupational attainment for all female groups.

Peterson, Stivers and Peters (1986) studied Black and White youth from rural, southern areas across a ten-year period. The respondents were from two-parent families and were asked to indicate from a list of options those persons who had talked to them about their job plans for the future. Both Black and White participants indicated parents were the most significant influencers of their career thoughts. Youths from both genders and races began seeking and getting more career advice from sources outside the family as they grew older.

Academic Achievement

Some of the academic variables which have been studied in relation to occupational interest are standardized test scores, academic grades, and courses taken in high school and college. The research findings on the dynamics between these variables and vocational behaviors is summarized.

Through a factor analytic study based on a sample of 237 eleventh graders from the mid-west, the underlying dimensions and overall structure of career development were isolated (Jepsen & Prediger, 1981). The first of four factors which were isolated correlated strongly with scores on a standardized academic achievement test and was labeled "Cognitive resources for decision-making" indicating that there is a cognitive component to the career development process which would be influenced by intelligence and inferred through scores on measures of academic achievement.

The career development characteristics of 107 male and female, 13 year old, intellectually gifted students was investigated by Kelly and Cobb (1991). The stage of career development of gifted students was higher than the norms for non-gifted students at either the ninth or twelfth grades. Gender membership differences existed on scores on overall career development knowledge and selection of occupation types. Gifted girls scored higher on overall career development knowledge, and boys more frequently selected higher-paying careers.

One defining factor for classification for a learning disability is evidence of a significant difference between a student's academic aptitude and achievement according to standardized test scores. Thus, by definition, a student with a learning disability has lower academic achievement scores. Investigation of career development stages of students with learning disabilities provided clarification of the role which academic achievement plays in the career development process. The ratings of importance of a group of occupations as perceived by 65 learning disabled high school students was compared with the ratings from a group of 85 non-learning disabled high school students (Plata & Bone, 1989). A significant difference in the rating scores was discovered, with students with learning disabilities rating skilled, semi-skilled or unskilled occupations more highly than non-learning disabled students.

The math skills of entering college students who attained senior or graduate status after four years ($N = 3609$) were examined (Waits & Demana, 1988). Academic underachievement in mathematics was a significant predictor of dropping out of college and limited the scope of occupations available to those students with low mathematics achievement.

A moderate, positive relationship was found between academic performance and the occupational self-efficacy expectations of 35 students enrolled in a high school equivalency program and the amount of serious consideration they would give to specific occupational activities, or the

pursuit of additional education (Bores-Rangel, Church, Szendre, & Reeves, 1990).

Lunneborg (1975) studied 1622 students in their third year of college who were undecided about their college majors. College grade point average and number of credit hours earned best predicted career undecidedness. High school grade point averages and pre-college test scores were the next most predictive variables of the students' vocational indecision.

Black male college students ($N = 127$) with grade averages of B or better had significantly more prestigious occupational aspirations than Black female college students (Grevious, 1985).

Variables which discriminated the psychology student ($N = 365$) from other students in related majors ($N = 248$) were superior high school grades, especially in math and science as well as high school achievement test scores (Lunneborg & Lunneborg, 1991).

The variables which were associated with university success and first year job performance of 970 nursing students were examined (Dyer, 1987). The student's self-reported grades in high school science courses were the best predictors of their nursing school and university grade point averages. Grade point averages were the best predictors of first year job performance.

The classification as a conservative or liberal Protestant minister was related to academic ability (Stone, 1989). A study of 692 first year ministry students indicated that conservatives had lower academic ability and

intellectual concern than liberals. Conservatives also had lower motivation for social reform, and less interest in service to people than did their liberal counterparts. The conservatives were more interested in parish settings after finishing ministry school than were the liberals.

Urban and Rural Residence

Residing in either a rural, suburban or urban environment might have an influence on the subsequent occupational behaviors of individuals. A small body of research exists which indicates the nature of the relationship between these variables.

The differences in career orientation of 1300 rural and urban Australian females were studied by Poole, Langan-Fox and Omodei (1991). The lack of financial and non-financial constraints had a stronger effect on the work satisfaction of rural females. Satisfaction with work remained a more stable construct and played a more important role in occupational interests for rural females than for urban females. Being a parent had a negative impact on the career orientation for both urban and rural females but was a more potent variable for rural females.

Socioeconomic class was shown to delineate more clearly between the career maturity levels of 252 preadolescent Black males (Dillard, 1976). Using a sample of urban middle class, suburban middle class, and urban lower class Black males from New York City schools, similarities in levels of career maturity were shown for the middle class urban and suburban

students. The urban lower class males showed lower levels of career maturity when compared with the other two groups.

The occupational aspirations and expectations of successful and unsuccessful migrant students (N = 151) were studied (Manaster, Chan, & Safady, 1992). The unsuccessful migrant students were from towns with populations of 5000 or less, and from high schools of 500 students or less. The unsuccessful students' occupational aspirations and expectations were significantly lower than those of the successful migrant students.

Using a total sample of 422 eight and eleven year olds from one rural and one urban area, Trice (1991) found that the career aspirations of the rural children were significantly more stable than those of the urban children. Rural children tended to choose careers which were similar to their parents or people in their communities.

In examining the vocational development of 282 children enrolled in day care programs in Pennsylvania, Vondracek and Kirchner (1974) found that urban Black children (N = 86) more frequently than White children gave responses that lacked projection into mature adult roles or which projected them into the roles of an older child. When studying just the responses which indicated that the child was projecting into a future adult role, the urban Black children gave significantly more responses which showed the achievement of an adult status but not an adult worker status.

Sport Type

A review of the literature revealed no research which indicated a correlation between the type of sport in which an individual competes and subsequent occupational choices.

Summary of the Literature

In general, the research on occupational choice and the variables selected for this study indicated that the most current revision of the SII has demonstrated evidence of some validity for Black males but that further research is necessary to direct the interpretation of results for all Black respondents. Some evidence exists which shows that occupational choice may vary systematically according to race.

Gender membership has a powerful impact on occupational choice, especially for males. Both males and females still tend to select occupations in fields which are dominated by the gender of which they are a member, but females are more likely to explore beyond the limits of gender composition of a career field and thus avail themselves of a wider array of occupational choices. Parents are strong influencers of their children's occupational choices up to mid-adolescence, when peers and other role models begin to have an additional impact on the career exploration process.

The interactions within the family which have a bearing on the overall level of functioning of the family unit and the degree of closeness felt between the child and father influence occupational choice. Absence of one

parent tends to lower the career and educational aspirations, attainments and subsequent work behaviors on the job of the children of the family.

There exists a cognitive component to the process of career exploration which is influenced therefore by the cognitive capability of the individual. Finally, the choice of urban or rural residence has a complex influence on occupational choice and satisfaction and is moderated by gender and socioeconomic status.

A specific description of the research design which tested the two hypotheses for this study is contained in Chapter III.

CHAPTER III

Methods and Procedures

Subjects

Subjects were 144 male and 63 female, Minority and White student athletes from an NCAA Division I university in the Southeast who had taken the 1985 revision of the SII. All subjects had entered the athletic program as freshmen and had been administered the Strong Interest Inventory during the first month of their freshman year. The 207 profiles were collected over six academic years. There were 21 profiles from 1987, 30 from 1988, 12 from 1989, 39 from 1990, 49 from 1992 and 56 from 1993.

Instrumentation

The 1985 revision of the Strong Interest Inventory (SII) was used to collect the data for the dependent variable for this study. The instrument is empirically based and has been revised periodically. The first version of the SII was published in 1927 and was designed to measure the career interests of men. A separate form for women was published in 1933. The 1974 edition, called the Strong-Campbell Interest Inventory (SCII), merged the two gender forms. The 1981 revision incorporated the Holland typology and its codes as its basic organizing structure. The 1985 revision reduced the number of professional occupations and increased the number of non-professional occupations in the occupations list.

The SII is appropriately used with adults, and 16, 17 and 18 year old adolescents. The manual reported strong reliability and validity data from a

number of different sources. Test-retest reliability figures of .91, .86 and .81 were reported for 14 day, 30 day and 3 year between-intervals administrations. Median internal consistency figures of .92 for males and .91 for females for the GOTs were reported (Hansen & Campbell, 1985). A construct validity coefficient of .765 between the GOTs of the SII and the scales from the Vocational Preference Inventory support the presence of the constructs which are described by the six different occupational environment themes.

There are 131 occupation items, 36 school subject items, 51 work and 39 leisure activities items, and 24 types of people items. In addition, there are 30 pairs of activities which the respondent selects according to the activity's personal appeal. The respondent is asked to endorse a liking, disliking or indifference to each one of these items. In addition, the respondent is asked to indicate which personality characteristics, from a list of 14, are most like, unlike, or questionable descriptors of him/herself.

There are three measures which indicate the manner in which the inventory was completed. These are (a) the number of infrequent responses, (b) the total number of responses and (c) the administrative indexes. The total possible number of responses for the SII is 325. A profile must have at least 305 responses to be considered valid.

The infrequent response score varies according to gender. From a baseline score of 8 for males and 7 for females, one point is subtracted for

each infrequent response made by the respondent. Profiles with zero or negative scores on this scale are to be interpreted with caution.

The Administrative Index tabulates the respondent's response style. The usefulness of the information derived from the SII depends on the Response Style. The GOTs and the BISs are calculated according to the number of Like responses only, whereas the OSs also take Dislike responses into account when calculating the respondent's scores. GOT and BIS scores may be spuriously high or low depending on the individual's response style, and interpretation of a profile with an extremely high or low response style could be inaccurate. A profile which shows a total percentage of LPs falling within the range of 20 - 55% is considered normal and interpretation of the results is fairly straightforward. Interpretation of profiles which fall outside of this range must be done with some caution. It is important that the administrative index of the profile be checked prior to score interpretation and statistical analyses (Hansen & Campbell, 1985).

Student Records

The analysis of existing data from an already established source, such as the student's academic records, is referred to as secondary analysis. This form of data acquisition and analysis is advantageous to the researcher for a number of reasons. First, it is a cost effective manner of collecting data and provides a savings of money, time and personnel. Second, the data is already in some organized system and so circumvents many problems

encountered in data collection. Third, it is a useful aid in exploratory research, allowing for the uncovering of relationships or trends between variables which need further study. Finally, it lends itself to a variety of statistical analysis techniques (Kiecolt & Nathan, 1985).

The subjects' student records were accessed through the university's computer system, and values for discriminator variables were collected for each student. Variables included were: race; gender; gender of parent named as head of household; composite college entrance exam score (ACT/SAT); total academic credits from high school; high school grade point average; size of high school locale; high school graduating class size; and sport type.

SAT scores were converted to an ACT equivalent using the current concordance conversion tables for comparing the ACT and the SAT tests (Houston & Sawyer, 1991; Marco & Abdel-Fattah, 1991).

Procedures

Procedures complied with requirements of the Office of Research Administration in order to ensure the subjects' right to confidentiality. Subjects were mailed a passive informed consent form which explained the study and provided the subject the opportunity to withdraw from the study if desired. Seven informed consent letters were returned through the mail because of inaccurate addresses and these profiles were eliminated from the sample. The remaining 207 profiles represent those student athletes who

were mailed an informed consent letter and did not elect to withdraw from the study. A copy of the Informed Consent Form appears in Appendix C.

Identifying information from the SII and the student's record was removed. SII profiles and information from the students' records were coded in order to match respondent data.

Following the recommendations of the authors in the SII manual (Hansen & Campbell, 1985) the SII profiles which had 20% or less LPs were categorized in the Low LP group. All other profiles remained in the Regular LP group.

Hypothesis one.

The first hypothesis, that the frequency of Low Like Preference is independent of one's status as a student-athlete or a non-athlete student, was tested by comparing the profiles of the student-athletes to those of non-athlete students at the same university. Profiles of 430 non-athlete students were stored at the Student Counseling Services Center at the university where the study was completed. Permission to examine the profiles was granted to the investigator by the Counseling Center's director (Appendix D). Profiles represented both male and female students and had been collected during the years of 1988 to 1993. The SII had been administered in group format in classes for an undergraduate Human Services class, an undergraduate Human Ecology class, a number of Career Decision Making courses, and from individual referrals to the Counseling Center or the Career

Services department from various agencies or academic departments on campus.

Hypothesis two.

The second hypothesis, that no subset of the variables: race; gender; parent gender; composite college entrance test score (ACT/SAT); total academic credits from high school; high school grade point average; size of high school locale; high school graduating class size; or sport type, reported on the student's academic history file, discriminates profiles with a Low Like Preference response style from profiles with a Regular Like Preference response style was tested. A data set was created which combined the participants' SII scores with values for the nine discriminator variables from their student records. Values for the discriminator variables from the students' records were extracted by a data analyst at the university's Office of Institutional Research. The data analyst was made aware of the participants' right to privacy and signed a confidentiality agreement (Appendix E).

Definitions of variables.

The variable RACE was divided into two categories of White and Minority. All 121 cases which fell in the White category were Caucasian. The Minority category was comprised of 86 cases, one Asian-American student, one Hispanic American student and 84 African-American students. White cases were coded 0 and Minority cases were coded 1.

The variable of GENDER was coded 0 for male and 1 for female.

The variable SPRTYPE represented a description of the type of sport, revenue-generating or non-revenue-generating, in which the student competed. In cases where a student competed in a sport from both categories the classification of revenue-generating was assigned. The revenue-generating sports are football and men's basketball. All other sports are classified as non-revenue-generating. Non-revenue-generating sports were coded 0 and revenue-generating sports were coded 1.

The PGEN variable represents the gender of the parent which appears on the student's record. Responses were coded 0 if no parent data appeared; 1 if the parent named was male; 2 if the parent named was female; and 3 if both parents were listed.

The TEST variable was defined as the composite ACT test score which appeared on the student's record in the university's database. Total SAT scores were converted to their enhanced ACT equivalent as previously described.

The TOTCRED variable represents the summation of high school credits in the areas of math, English, language, science, social studies and other academic courses which appeared on the student's record in the university's database. Other academic credits included academic courses such as business, economics, government, religion, computer science, psychology, and civics.

The HSGPA variable was an exact reporting of the student's high school grade point average as that figure appeared on the student's record in the university's database. Grade point averages were reported to the second decimal space.

The POP variable was a report of the most current population data for the home town of the student. The principal source of population data was the 1990 census data (U. S. Bureau of the Census, 1990). Other sources included the Rand-McNally atlas (1993) and an international gazetteer. Population figures were not rounded off.

The HSPOP variable was the number of students reported in the high school graduating class of each participant in the study.

Data Analysis

Hypothesis one.

The Total Like Preferences variable was tested for normality. The responses for this variable were found to be not normally distributed. Therefore the first hypothesis, that the response style on the Strong Interest Inventory of student athletes at a Division I NCAA university in the Southeast is the same as of the non-athlete population from the same university, was tested using a non-parametric procedure. The Chi Square test of goodness of fit procedure was applied. The conditions being examined were the frequency of Low Like Preference responders ($\leq 20\%$

Total Like Preferences) vs Regular Like Preference responders ($\geq 21\%$ Total Like Preferences) of student-athletes and non-athlete students.

Hypothesis two.

Discriminant function analysis was the procedure selected to test the second hypothesis. The second hypothesis stated that no subset of the variables: race; gender; parent gender; composite college entrance test score (ACT/SAT); total academic credits from high school; high school grade point average; size of high school locale; high school graduating class size; or sport type, reported on the student's academic record, discriminates profiles with a Low Like Preference response style from profiles with a Regular Like Preference response style

Discriminant function analysis "is a statistical technique which allows the researcher to study the differences between two or more groups of objects with respect to several variables simultaneously" (Klecka, 1980, p. 7). It should be used when the objective of an investigation is to "understand group differences and predict the likelihood that an entity (individual or object) will belong to a particular class or group based on several metric independent variables" (Hair, Anderson, Tatham & Black, 1992, p. 8). Several of the discriminator variables in this study were not metric and so were converted to dummy variables, a procedure which Hair et al, (1992) stated must be interpreted carefully.

A discriminant function analysis was computed with the nine discriminator variables and the categories of Low and Regular Like Preference response style for the dependent variable. The model was calculated using 190 cases because of missing data on a number of variables. Hair et al, (1992) indicated that this size of a sample was sufficient for the number of discriminator variables used in this model in order to achieve statistical accuracy. "Discriminant analysis is quite sensitive to the ratio of sample size to the number of predictor variables. Many studies suggest a ratio of 20 observations for each predictor variable" (Hair et al, 1992, p. 92).

The level of the data of the dependent variable, Total Like Preferences, is continuous rather than categorical, so there was some value in analyzing the data using multiple linear regression in addition to the discriminant function analysis. The data was also analyzed using multiple linear regression analysis. As with the discriminant function analysis, there were 190 observations with complete data on all nine variables which were available for the analysis. The dependent variable for the multiple regression analysis was the percentage of Total Like Preferences (TotLP).

Two additional statistical analyses were run including the subjects' score on the Basic Interest Scale for athletics (Ath) from the SII as a tenth predictor variable. The addition of Ath as a tenth predictor variable was guided both by empirical evidence and intuition. The mean score for the Ath

BIS was 58. This was the highest BIS score for the sample. It also made intuitive sense that a group of student athletes would most frequently endorse those items which loaded on the Athletics BIS. It was recognized that all the BIS scores would represent subscales of the Total LP score and thus be highly correlated with the TotLP score. The first multiple linear regression analysis used all 190 participants' scores. Another multiple linear regression analysis was run on the LLP group alone. The sample size of this multiple regression analysis was 67. The TotLP score was the dependent variable for the multiple linear regression analyses. A description of the sample and results of the study will be presented in Chapter IV.

CHAPTER IV

Results

Description of the Sample

A description of the 207 subjects in the study is provided for a clear understanding of the sample. The information is presented in two separate tables. The sample description in Table 1 shows the representation of sample according to race, gender, and sport type groupings. Percentages of the total sample which the racial, gender, and sport type groups represent are also provided.

Table 1

Description of Sample by Race, Gender and Sport Type

<u>Variable</u>	<u>Raw Frequency</u>	<u>Percent Frequency</u>
<u>Race</u>		
Minority	86	41.55
White	121	58.45
<u>Gender</u>		
Female	63	30.43
Male	144	69.56
<u>Sport Type</u>		
Non-Revenue	95	45.89
Revenue	112	54.11

A breakdown of the information reported on the student record of the gender of the parent who heads the household is shown in Table 2. Information is described according to the race and gender of the student.

The Total Like Preferences variable was divided into Regular Like Preference and Low Like Preference categories in order to run the discriminant function analysis. The Total Like Preference score is a percentage of the 325 items of the SII to which the respondent replied positively. The range of scores was from a low of 4 to a high of 63. The distribution of the 207 Total Like Preference scores was positively skewed and platykurtic, with a median of 24, a mean of 26.396 and a standard deviation of 11.09. The dispersion of the Total Like Preference scores was determined to be not normally distributed.

A description of the demographic breakdown of the sample of student athletes according to response style is presented in Table 3.

Hypothesis One

The first hypothesis, that the response style on the Strong Interest Inventory of student athletes at a Division I NCAA university in the Southeast is the same as that of the non-athlete population from the same university was tested. The non-parametric, Chi-square goodness of fit statistic was used to test the hypothesis because the frequency of the student athletes' Total Like Preference scores was not normally distributed. The Chi-square procedure compared the frequency of the 207 Regular and

Table 2

Raw Frequencies and Percent Frequencies of Gender of Parent Head of Household According to Race and Gender of Subject

Description	Raw Frequency	Percent Frequency
Minority Female		
None	3	1.45
Male	5	2.42
Female	7	3.38
Both	0	0.00
Minority Male		
None	7	3.38
Male	19	9.18
Female	37	17.87
Both	8	3.86
White Female		
None	3	1.45
Male	33	15.94
Female	11	5.31
Both	1	.48
White Male		
None	5	2.42
Male	48	23.19
Female	16	7.73
Both	4	1.93

Table 3

Demographics - Regular and Low Like Preference Responders

<u>Variable</u>	<u>Raw Frequency</u>	<u>Percent Frequency</u>
<u>Race</u>		
<u>Minority</u>		
LLP	90	43.48
RLP	50	24.15
<u>White</u>		
LLP	31	14.98
RLP	36	17.39
<u>Gender</u>		
<u>Female</u>		
LLP	15	07.25
RLP	48	23.19
<u>Male</u>		
LLP	52	25.12
RLP	92	44.44
<u>Sport Type</u>		
<u>Non-revenue</u>		
LLP	27	13.04
RLP	68	32.85
<u>Revenue</u>		
LLP	40	19.32
RLP	72	34.78

Low Like Preference responders from the student athlete sample to the frequency of a sample of 430 Regular and Low Like Preference responder, non-athlete students from the same university. Observed and expected frequencies according to response style and the subjects' status as an athlete or non-athlete student appear in Table 4. The statistical analysis yielded a significant Chi-square score of 62.969 $p > .001$ ($df = 1$, $N = 637$). There is a much stronger probability that the student athlete at this university will fall into a Low Like Preference response category on the SII than the non-athlete student. Therefore, the first hypothesis was rejected. It was concluded that there is a difference in response styles on the SII depending on status as an athlete.

Hypothesis Two

The second hypothesis, that no subset of the variables: race; gender; parent gender; composite college entrance exam score (ACT/SAT); total academic credits from high school; high school grade point average; size of high school locale; high school graduating class size; or sport type discriminates profiles with a Low Like Preference response style from profiles with a Regular Like Preference response style, was tested using a discriminant function analysis.

Table 5 consists of a list of the means and standard deviations of each interval level variable according to the Regular Like Preference and Low Like Preference groupings. Students who fell in the LLP group were also from smaller high schools and smaller home towns. The college entrance exam scores of students in the LLP group were lower and less varied than those of the students in the RLP group. Students who fell in the LLP group had more total academic credits from high school than those of their RLP

Table 4

**Chi-Square Table of Observed and Expected Frequencies According to
Student Athlete Status and Response Style**

	Status		Totals
	Athlete	Non-Athlete	
<u>Response Style</u>			
LLP	67 ^a 32.821 ^b	34 ^a 68.179 ^b	101
RLP	140 ^a 174.179 ^b	396 ^a 361.821 ^b	536
Totals	207	430	637

Note: ^a = Observed frequency.

^b = Expected frequency.

Table 5

Means and Standard Deviations of Discriminator Variables According to Regular and Low Like Preference Groups

Variable	<u>RLP</u>	<u>LLP</u>
	Mean / SD	Mean / SD
HS Pop	295.111 / 140.03766	264.094 / 119.635
Home Pop	193686 / 396123	159457 / 323691
Test	19.67460 / 4.60057	18.53125 / 3.30929
Totcred	18.39762 / 2.49654	18.85156 / 5.46321
HSGPA	2.82386 / 0.60852	2.68575 / 0.49056

counterparts, but there was much greater variation on this variable for the LLP group than there was for the RLP group. The high school grade point averages of the LLP group were lower and less varied than those of the RLP group.

The distribution of the data according to LLP and RLP groups is summarized in Table 6 showing frequency and percent frequencies for the four nominal level variables which were race, gender, sport type and gender of parent as head of household. The means and standard deviations for the groupings indicated a difference in gender representation, with more males falling in the LLP category. There was also a difference between the groups according to racial representation. The LLP group had a slightly higher representation of minority student athletes than the RLP group. There were

Table 6

Frequency and Percent Frequencies According to Regular and Low Like Preference Groups for Race, Gender, Sport Type and Gender of Parent

Variable	<u>RLP</u>	<u>LLP</u>
	Frequency/%	Frequency/%
Race		
Minority	49/23.79	36/17.48
White	90/43.69	31/15.05
Gender		
Female	63/30.58	15/7.28
Male	91/44.17	52/25.24
Sport Type		
Non-Revenue	68/33.01	27/13.11
Revenue	71/34.47	40/19.42
Gender of Parent		
None	12/5.83	6/2.91
Male	72/34.95	33/16.02
Female	45/21.84	25/12.14
Both	10/4.85	3/1.46

more White student athletes in the RLP group than Minority student athletes.

For purposes of the analysis, the total sample was reduced to 190 because of missing values on some of the variables. This reduction of sample size left 126 SII profiles in the Regular Like Preference category and 64 profiles in the Low Like Preference category. Thus, 33.68% of the sample fell in the LLP class.

The result of the total model discriminant function analysis was non-significant, $F(9,180) = 1.27582$, $p > .2528$. The nine discriminator variables included in the model did not allow for discrimination between the RLP and LLP responders for this sample of student athletes.

The univariate test statistics for the five interval level discriminator variables including the probability value for each variable are shown in Table 7.

Table 7

Univariate Test Statistics

	F value	Probability value
High School Population	2.2894	0.1319
Home Town Population	0.3566	0.5511
Test	3.1271	0.0786
Total Academic Credits	0.6183	0.4327
High School GPA	2.4768	0.1172

When the more conservative significance level of $p > .0055$ was used by employing the Bonferroni formula for adjusting the error rate for a family of predictors ($.05/9 = .0055$) (Howell, 1982), none of the nine discriminator variables approached significance. Race and college entrance exam scores had the highest F values and seemed to be the most likely to differentiate between the LLP and the RLP groups. However, neither of these should be considered adequate discriminators.

Results of the multiple regression analysis for the model were non-significant, $F(11) = 1.57$, $p > .1126$, and only nine percent of the total variance was accounted for by the selected predictor variables. None of the individual predictor variables discriminated the LLP group from the RLP group.

Generally, the RLP and LLP groups appear to be more similar than they are different. A picture of a somewhat homogeneous group of student athletes emerged. At the same time, they are decidedly separate from other university students, at least in the way in which they respond to the Strong Interest Inventory. It was posited that the commonality which the student athletes shared apart from their non-athlete counterparts might be their interest in athletics.

When the metric score for the participants' interest in athletics was added as a tenth variable to the multiple linear regression model with TotLP as the dependent variable, the analysis yielded a highly significant value for the entire model $F(12) = 5.64$, $p > .0001$. The percent of the variance

which was accounted for by this model was 27.67, showing that interest in Athletics was a significant predictor of the Total Like Preferences. However, only the univariate Athletics interest variable attained a significant value, $F(1) = 46.13$, $p > .0001$. Both the F value for the full model and the univariate F value for interest in athletics were significant using the stricter significance level of .005 (.05/10).

The multiple linear regression analysis of the LLP alone with interest in athletics included as the tenth predictor variable yielded a significant $F(12) = 3.24$, $p > .0016$. As in the previous analysis, the only predictor variable which attained significance was interest in athletics $F(1) = 12.90$, $p > .0007$.

Tukey post hoc analyses revealed a significant difference between the Total LP scores according to race. White student athlete Total LP scores were significantly higher than those of the minority student athletes. The addition of the interest in athletics variable highlighted a significant difference in TotLP means according to race. The TotLP scores of the minority students were lower ($\underline{M} = 24.049$) than those of the White students ($\underline{M} = 27.620$). Analysis of the data of the participants in the LLP group alone revealed significant differences in the TotLP scores according to the gender of the parent named as head of household when the Athletics interest scale score was added as the tenth predictor variable. Significant differences were found between those LLP students who listed no one as

head of the household and either those who listed a male, or both male and female, as head of the household.

The extension of the model to include the interest in athletics (Ath) variable added a critical dimension to the study. It was important to explore the possibility of relationships between any of the variables including athletic interest. Relationship data in the form of a correlation matrix of all the discriminator variables and the dependent variable is provided in Table 8. Data are discussed here in descending order of strength of the relationship between the variables and only significant relationships are described. The data in this table reveals evidence of relationships between some variables which are well documented in the literature and so their appearance in this study only serves to verify existing research. There is also evidence of relationships between variables which are not well documented in the literature and are specific to this study. The strongest of all the correlations was a negative one which existed between gender and sport type ($r = -.71818$, $p > .0001$). Women's collegiate athletics is a non-revenue generating endeavor, and so this strong negative relationship is not surprising. Other moderately strong, positive relationships were noted between composite college entrance exam score and high school GPA ($r = .56847$, $p > .0001$) showing that the higher the student's high school GPA, the higher the college entrance exam score. The student's gender and high school GPA were also positively linked ($r = .52026$, $p > .0001$). Female student athletes generally earned higher GPA's in high school than the male

Table 8

Correlation Table of Discriminator and Dependent Variables

Correlation coefficient / Probability / Sample Size											
	HSPOP	TEST	HSGPA	ATH	POP	PGEN	TOTCRED	RACE	GENDER	SPORT TYPE	TOTLP
HSPOP	1.000	.15098 .0347* 196	.11597 .1046 197	-.05571 .4368 197	.03746 .6022 196	.13220 .0640 197	-.01511 .9353 192	.00118 .9869 197	-.03882 .5881 197	-.07890 .2704 197	.09031 .2069 197
TEST		1.000	.56847 .0001*** 202	.04827 .4908 206	-.03262 .6424 205	-.13345 .0558 206	.22751 .0014** 195	-.44400 .0001*** 206	.34817 .0001*** 206	-.37530 .0001*** 206	.16694 .0165* 206
HSGPA			1.000	-.12938 .0658 203	-.07537 .2864 202	-.08394 .2338 203	.20931 .0032** 196	-.29158 .0001*** 203	.52026 .0001*** 203	-.35587 .0001*** 203	.13922 .0476* 203
ATH				1.000	.07720 .2700 206	-.04449 .5244 207	-.07931 .2692 196	-.17224 .0131* 207	-.18061 .0092** 207	.04114 .5562 207	.42670 .0001*** 207
POP					1.000	-.08629 .2175 206	-.10288 .1524 195	.00522 .9406 206	-.09884 .1575 206	.00567 .9355 206	.10848 .1206 206
PGEN						1.000	-.01254 .8615 196	.23013 .0009** 207	-.14410 .0383* 207	.21536 .0018** 207	-.07238 .3000 207
TOTCRED							1.000	.00366 .9594 196	.17253 .0156* 196	-.10679 .1363 196	-.05221 .4674 196
RACE								1.000	-.23806 .0006** 207	.32398 .0001*** 207	-.14626 .0356* 207
GENDER									1.000	-.71818 .0001*** 207	.09873 .1570 207
SPORT TYPE										1.000	-.06429 .3574 207
TOTLP											1.000

Note: * = $p > .05$ ** = $p > .01$ *** = $p > .001$

student athletes. Race and composite college entrance exam scores were negatively correlated ($r = -.44400$, $p > .0001$). Minority student athletes' college entrance exam scores were lower than those of the White student athletes.

Of particular interest to this study was the moderately strong, positive relationship between interest in athletics and scores on the Total Like Preferences variable ($r = .42670$, $p > .0001$). The higher the student's score on the Athletics Basic Interest Scale, the higher was the number of Like Preferences on the entire SII. A moderately strong, negative relationship was also noted between sport type and composite college entrance exam test score ($r = -.37530$, $p > .0001$). The higher the test score the more likely the athlete would be to participate in a non-revenue generating sport. The negative relationship between sport type and high school grade point average ($r = -.35587$, $p > .0001$) indicated that the higher the student's high school GPA, the more likely the student would be to compete in a non-revenue generating sport. The relationship between gender and composite college entrance exam score was moderate and positive ($r = .34817$, $p > .0001$). Female athletes tended to score higher on the college entrance exams than their male counterparts.

A weak, yet significant, positive relationship existed between sport type and race ($r = .32398$, $p > .0001$) showing that males tended to play revenue-generating sports. There was also a weak, positive relationship

between race and gender of parent named on student record ($r = .23013$, $p > .001$). Interpretation of this finding is difficult to clearly delineate because of the four levels of possible responses for the parent gender variable. The greater the total number of academic credits a student had from high school, the higher were the composite college entrance exam scores ($r = .22751$, $p > .001$). Weak, significant negative relationships were noted between race and high school GPA ($r = -.29158$, $p > .0001$) and race and gender ($r = -.23806$, $p > .0006$) indicating that Minority students were more likely to have slightly lower grade point averages in high school than the White students and the majority of the women athletes in the sample were White.

Summary of the Results

The findings of this study are summarized as follows.

1. There is a significant difference ($p > .001$) in the response style on the SII between student athletes and non-athlete students from the same southeastern NCAA Division I university.
2. None of the nine discriminator variables used in the study and recorded on the student's record (race; gender; parent gender; composite college entrance test score (ACT/SAT); total academic credits from high school; high school grade point average; size of high school locale; high school graduating class size; or sport type) approached significance in predicting response style of student athletes on the SII.

3. When scores on the Basic Interest Scale for Athletics was added as a tenth predictor variable of Total Like Preferences, the entire total model was statistically significant $F(12) = 5.64$, $p. > .0001$, and Athletics interest was the only significant predictor variable $F(1) = 46.13$, $p. > .0001$, which accounted for 27.67% of the total variance for the model.

4. Correlations between scores on the Basic Interest Scale for Athletics and Total percentage of Like Preferences were such that the higher the score on the athletic interest scale, the higher was the total number of Like Preferences for the entire inventory.

What emerged from this study was a picture of a somewhat homogeneous group of student athletes at one southeastern NCAA Division I university that differed significantly from the general student population at the same university in their response styles on the SII. Implications for career counseling and career development programming are presented in Chapter V.

CHAPTER V

Discussion

General Conclusions

Analysis of the results of this study revealed a number of important findings. First, was the significant difference between the manner in which the student athlete sample and the non-athlete student sample responded to the Strong Interest Inventory. One interpretation of this finding could be that the type of students who are recruited to compete in intercollegiate athletics at this university enter school with a significantly smaller array of career interests than their non-athlete counterparts. Another possible interpretation of the difference in response styles between athletes and non-athletes at the same university is that the SII may not be an appropriate tool to adequately measure the interests of the student-athletes at this university. The phenomenon that was measured by the SII in this study was the level of interest in a variety of occupations that the student athletes had as they entered college. Experience at the collegiate level of competition would not be a factor which would influence the way in which the athletes responded to the SII since the inventory was administered at the beginning of the student athletes' first year in school. Further study is needed to determine the underlying factors which cause such a difference in response styles of these two groups of students.

The second important discovery revealed through this study was that of the absence of discriminators between the LLP and RLP groups. Selection

of the discriminator variables for the model had been thoroughly researched and, with the exception of type of sport played, each had shown evidence in past studies of having an impact on occupational choice. Had the discriminant function analysis yielded significant results, the obvious and important within-group similarities might have been overlooked. Heightening awareness of the within-group similarities which cross ethnic, gender, family structure, geographic and academic achievement lines is an extremely important outcome of this study. This heightened awareness of the within group similarities will promote the more accurate understanding of the needs of this group of university students and merits further investigation.

The lack of significant results from the linear regression analysis using the Total LPs as the dependent variable adds further weight to the evidence yielded from the discriminant function analysis that demonstrates this subgroup of university students to be remarkably homogeneous. The addition of the Athletics interest score as the tenth predictor variable and its subsequent significant F value when regressed against the Total LP score showed that this area of interest may be the commonality which unites these students. The importance of the athletics interest factor should not be minimized as it showed itself to be an even stronger predictor of how the student would respond to the SII than race, gender, family structure, geography, and academic ability. The Athletic interest factor needs to be more fully researched in order to provide the most enlightened and effective

career and advising services for the student athlete. Further research is necessary to determine the variables which discriminate the LLP from the RLP responders. In addition, research which focuses on the commonalities within the student athlete population would serve to educate those who work with this population as well as experts in the area of career development.

The data compiled in the correlation matrix revealed a wealth of information regarding the relationships between the variables used in this study. Some of these relationships, such as that between college entrance exam composite scores and high school grade point average, and race and college entrance exam composite scores, are well documented in the literature and warrant no further discussion here. The positive correlation between total number of academic credits from high school and composite college entrance exam score was consistent with findings reported from research on a sample of NCAA Division I collegiate athletes competing in revenue generating sports at a southeastern university (Ervin, Saunders, Gillis & Hoglebe, 1985).

The relationships which were revealed between the sports related variables add new information to the field of vocational psychology and are an important contribution to the understanding of the student athlete subgroup. Most important is the significant, positive relationship between interest in athletics and the Total LP score on the SII. This relationship

indicated that the higher the score on the interest in athletics scale, the higher would be the overall Total Like Preferences score. This finding is contrary to the SII authors' suggestion in the manual that the more focused a person's interests are, the lower would be their Total LP score (Hansen & Campbell, 1985). At least with this sample of student athletes the interest in athletics seemed to have a positive impact on interest in other areas as well.

The type of sport in which a student athlete competes was negatively related to academic ability such that students with lower composite college entrance exam scores and lower high school grade point averages tended to compete in those sports which produce revenue. All of these student athletes have been participating in athletic programs for many years prior to entering the university. Certainly the natural talent in the field of athletics has been present and developed throughout the secondary, and often much earlier school years. It is not clear whether participation in athletics, particularly in those sports which generate revenue, has distracted the athlete from academics, that they are compensating with athletics for lower overall academic ability, or that their academic needs have been relegated to lower priority levels by the student, parents, coaches and school administrators so as to benefit the student's future athletic careers as well as the athletic programs of their high schools. The potential for economic gain for the student athlete as well as the institution is a

potent factor which must have an influence on many career and academic decisions which are made by parents, coaches, advisors and the student athlete from a very early age. Ervin et al. (1985) pointed to the potential for exploitation of a subgroup of student athletes who can provide economic benefits for the institution for which they compete but who do not receive the benefits of the university's academic programs due to their lower levels of academic preparation. Further research in this area is needed to determine the dynamics of the interaction between athletic participation and academic performance.

The race of the student athlete was also related to the type of sport played such that the minority student athlete tended to participate more frequently in revenue generating sports than the White student athlete. Being a member of a minority group was also related to lower high school grade point averages and lower college entrance exam composite scores in this study. Tumin (1967) indicated that increased earning potential for the individual is one way to achieve upward social mobility, especially for members of society that have limited access to positions of power and prestige by virtue of their minority status. Zytowski (1973) claimed that the usefulness of interest inventory information is limited to two types of people, "those who have access to a variety of occupations and those who seek to plan ahead to maximize their occupational satisfaction" (p. 3). Equal marketplace accessibility for all races and both genders is an ideal which is

not presently a reality. The potential for exploitation of the individual's natural desire to get ahead by institutions which benefit financially from the athletic efforts of minority students has also been suggested (Lederman, 1992). The dynamics of the interrelationships of these factors is not clear but necessitate careful examination in controlled studies.

Limitations of the Study and Directions for Future Research

The conclusions drawn from this study are limited as data from only one university was used in the analysis, but they point to a number of additional areas which warrant further research and have not been previously mentioned. Within this same institution, further studies should be undertaken to investigate the dimensions on which the student athletes differ from and are similar to their non-athlete peers. The adequacy of the SII to measure the career interests of student athletes at other NCAA Division I schools needs to be more fully investigated. Parallels can be drawn between professional careers in athletics and professional entertainment careers in music, drama and dance. Comparative studies of career interests as measured by the SII of students' in fields which are entertainment or performance related and hold out the potential for upward social mobility and large increases in earning potential would add important information to the field of vocational psychology. Such studies would also enhance the efforts of support personnel who work with these populations as counselors and advisors. Universities which have programs in both

athletics and theater, music and dance would be perfect settings for continued study with the SII in the area of occupational interest measurement.

Recommendations for Counseling Interventions

The results of this study have a number of strong implications for counselors who work directly or indirectly with the student athlete population. Lanning (1982) indicated the need for specific counseling programs that address student athlete needs which are frequently overlooked because of the athletes' special or privileged status by professionals and athletic departments. Pearson and Petitpas (1990) refer to two programs which target the special needs of athletes and focus on preparation for athletic and life cycle transitions. The "Career Assessment Program for Athletes" (CAPA) and the "Making the Jump Program" (MJP) were cited as preventative and proactive in nature and provide supportive services which are typically unavailable or overlooked by most athletic programs. It should be noted that neither of these programs is targeted at the collegiate athlete population. The CAPA project was conceived for Olympic athletes, and the MJP program is designed for high school athletes and their parents. Modifications of these programs could easily be made for the collegiate student athlete.

The response style of all respondents to the SII should always be considered prior to any subsequent interpretation of the profile. Caution

should be used in making interpretations of the results of the SII when the respondent is a student athlete. A list of Occupational Themes from the SII (Appendix A) shows only one occupation which is directly related to the field of athletics (athletic trainer) and so this instrument may not adequately represent the areas to which the student athlete would realistically aspire. It is no wonder that this group of students with highly focused interests in athletics are responding on the SII at a relatively low rate and thus the usefulness of the SII may be severely limited with them. Conclusions based on SII results which stereotype the student athlete population as having specific career personality types or Holland codes should be avoided without close consideration of the response style.

Focusing on occupational interest may not be an appropriate starting point to begin vocational counseling work with this population, particularly for the minority student athlete. Working with student athletes to heighten their self-awareness as well as skills development, marketplace awareness and academic development are equally important areas to be included in a well-rounded career counseling program for this population. The use of other vocational measurement tools is also indicated. Holland's (1977) Self-Directed Search (SDS) yields a three letter code of the respondent's vocational personality and provides a list of occupations which match those codes. Use of SDS with the student athlete population would be a more

positive approach to the career exploration process and a better place to start vocational counseling than the information provided by the SII.

A number of card sort techniques are also available which allow the respondent to manually sort through an array of careers or college majors and focus on the individual's decision making process rather than on the selection of an outcome occupation. Pinkney (1985) has described an intervention strategy combining information extracted from the SII with a follow-up card sort exercise for respondents with few Like Preferences. Such an approach with the student athlete population offers great promise. Using this method, the career counselor's role would be as a facilitator in helping the respondent clarify underlying values which influence the decisions made at each stage of the card sort exercise.

Guided imagery techniques have been shown to be effective in generating greater numbers of career alternatives than simple discussion groups (Sarnoff & Remer, 1982). Guided imagery techniques promote divergent thinking, the development of problem-solving skills and allow the participant to try out alternative roles (Skovholt, Morgan & Negron-Cunningham, 1989). Sports psychologists rely heavily on imagery techniques and have proven them effective intervention methods with athletes at all levels of abilities for the purposes of performance enhancement. Use of such techniques would be a creative tool for the career counselor who works with the athlete population.

A specialty instrument may need to be developed which would include a selection of athletics-related careers that span the array of occupational environments. Such an instrument would be a welcome tool for the counselor working with this population.

Career counseling programs which provide a combination of individual and group intervention formats should be used. Participation in a five-session career counseling program for student athletes had significant effects on first semester grade point averages, the number of changes in choices of majors and higher expressed satisfaction with a chosen major as well as higher grade point averages at the end of the first year in college (Nelson, 1982). This career counseling program focused on personal values, interests, competencies, goals and the opinions of others. Any career counseling program for student athletes, using either an individual or group format, must be sensitive to the needs of gender and ethnic subgroups within the student athlete population. Career counseling programs should be scheduled to address career topics which are salient at various stages throughout the students' years at the university. Selection of a college major which will prepare the student for a future career should be the focal point of career intervention programs during the students' first two years. Later components of a well-planned career counseling program should focus on the personal and professional transition issues related either to retirement from collegiate athletics or moving into the professional realm (Petitpas,

Danish, McKelvain & Murphy, (1992). Opportunities to air negative feelings about being exploited by the institution for its financial gain must be provided at later stages of the career counseling program. Small group workshops with student athletes which highlight the within-group similarities of interests and values would promote empowerment rather than underscore their differences from the rest of the university student population.

Participation in collegiate athletics was cited as having a detrimental effect on the students' ability to make mature educational and career plans (Blann, 1985). Efforts should be made to encourage the athletes' thinking in terms of transferability of individual and organizational skills acquired through years of athletic training and competition to the needs of the marketplace. Such a shift in focus would promote an attitude of having made a wise investment in their vocational future rather than viewing their athletic careers as having been a detour from the more typical career development route taken by the non-athlete student.

Finally, approaching the entire career development task for student athletes from a career transition perspective rather than one of career selection would enhance the promotion of self-respect and a movement towards further empowerment. Discussing the reality of their already having spent a significant amount of time as career athletes would raise pride and feelings of responsibility about the career choices that have already been made up to this point. Student athletes, along with their parents, have been

making mature career decisions for years and have entered the career preparation process at a much earlier age than their non-athlete peers. These career-related decisions set them apart from their classmates. This separation has both positive and negative effects on the student athlete's development. They are subsequently out of step with their peers in the career development process. Student athletes have been shown to be less involved with other campus activities than non-athlete students (Stone & Strange, 1989). Acknowledgement of the emotional isolation which results from being separated from their peers and out of step in the career development process would be an important feature of any career focused program for the student athlete. Programs are necessary which are framed from a position of respect for the career work that has been already accomplished and typically goes unrecognized.

Career counseling provides the professional counselor a unique opportunity to enter the world of the client's hopes and dreams. Student athletes' dreams are well-founded on their proven skills in the field of athletics. Care must be taken to provide counseling services which are both respectful and realistic so as to most effectively aid the student athlete in either attaining or modifying their dreams to best suit their individual career goals.

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Appendixes

Appendix A

Strong Interest Inventory Scales**General Occupational Themes****Basic Interest Scales****Realistic****Agriculture****Nature****Adventure****Military Activities****Mechanical Activities****Investigative****Science****Mathematics****Medical Science****Medical Service****Artistic****Music/Dramatics****Art****Writing****Social****Teaching****Social Service****Athletics****Domestic Arts****Religious Activities**

Enterprising

Public Speaking

Law/Politics

Merchandising

Sales

Business Management

Conventional

Office Practices

Strong Interest Inventory Scales

General Occupational Themes

Occupational Scales

Realistic

Marine enlisted (male)
 Navy enlisted
 Army officer
 Navy officer
 Air Force officer
 Air Force enlisted (male)
 Police officer
 Bus driver
 Horticultural worker
 Farmer
 Vocational ag. teacher
 Forester
 Veterinarian (male)
 Athletic trainer (female)
 Emerg. med. technician
 Radiologic technician
 Carpenter
 Electrician
 Architect (female)
 Engineer

Investigative

Computer programmer
 Systems analyst
 Medical technologist
 R & D manager
 Geologist
 Biologist
 Chemist
 Physicist
 Veterinarian (female)
 Science teacher
 Physical therapist
 Respiratory therapist
 Medical technician
 Pharmacist
 Dietician (female)
 Nurse, RN (male)
 Chiropractor
 Optometrist
 Dentist

Physician
Biologist
Mathematician
Geographer
College professor
Psychologist
Sociologist

Strong Interest Inventory Scales

General Occupational Themes

Occupational Scales

Artistic

Medical illustrator
 Art teacher
 Artist, fine
 Artist, commercial
 Interior decorator
 Architect (male)
 Photographer
 Musician
 Chef (female)
 Beautician (male)
 Flight attendant
 Advertising executive
 Broadcaster
 Public relations director
 Lawyer
 Public administrator
 Reporter
 Librarian
 English teacher
 Foreign language teacher
 (male)
 Foreign language teacher
 (female)
 Minister
 Social worker
 Guidance counselor
 Social science teacher
 Elementary teacher
 Special ed. teacher
 Occupational therapist
 Speech pathologist
 Nurse, RN (female)
 Dental hygienist
 Nurse, LPN
 Athletic trainer (male)
 Physical ed. teacher
 Recreation leader
 YWCA/YMCA director
 School administrator
 Home economics teacher

Social

Strong Interest Inventory Scales

General Occupational Themes

Occupational Scales

Enterprising

Personnel director
 Elected public official
 Life insurance agent
 Chamber of Commerce exec.
 Store manager
 Agribusiness manager
 Purchasing agent
 Restaurant manager
 Chef (male)
 Travel agent
 Funeral director
 Nrsng home admn. (male)
 Optician
 Realtor
 Beautician (female)
 Florist
 Buyer
 Marketing executive
 Investments manager

Conventional

Accountant
 Banker
 IRS agent
 Credit manager
 Business ed. teacher
 Food service manager
 Dietician (male)
 Nrsng home admn. (female)
 Exec. housekeeper
 Food service manager
 Dental assistant
 Secretary
 Air Force enlisted
 (female)
 Marine enlisted (female)
 Army enlisted
 Mathematics teacher

Appendix B

Student Record

STUDENT ACADEMIC HISTORY
THE UNIVERSITY OF TENNESSEE, KNOXVILLE

date printed: 06/22/1993 10:44 am
page: 1

TENNESSEE

place of birth

date of birth

1311 LAKE LOUDON BL
KNOXVILLE
local address

TN 37910

KNOXVILLE

TN 38106

permanent address

06/1988
date

COMP

ENGL MATH SOC SC NAT SC

test scores:

parent name
HIGH SCHOOL
graduation: 06/1989

TN 38116

hs gpa

high school

high school subject units earned

ENGLISH 4.0 OTHER NATURAL SCIENCES 1.0
ELEMENTARY ALGEBRA 2.0 AMERICAN HISTORY 1.0
GEOMETRY 1.0 WORLD HISTORY 1.0
SPANISH 2.0 OTHER ACADEMIC 5.5
BIOLOGY 1.0 NON-ACADEMIC 3.5
CHEMISTRY 1.0

total units earned: 23.0

course	course name	crs	cr	typ	hrs	lvi	grade
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FALL SEM 1989
UNDECLARED

UNIVERSITY

SPRING SEM 1990
UNDECLARED

UNIVERSITY

EDS CS PSY 404	A LIFE SKILL & PROB SOL	REG	2.00	U			
ENGLISH 101	A ENGLISH COMP 1	REG	0.00	U			
ENGLISH 103	A WRITING WORKSHOP	REG	0.00	U			
HEALTH 110	A PERSONAL HLTH/VLNS	REG	3.00	U			
MIL SCI 110	A BASIC MILITARY SCI	REG	3.00	U			
TPS U attempt	8.00 ernd	5.00	s/p	0.00	qpts		00 gpa
UIT U attempt	5.00 ernd	5.00	s/p	0.00	qpts		00 gpa
CUM U attempt	5.00 ernd	5.00	s/p	0.00	qpts		00 gpa

academic standing: ACAD REVIEW 1ST TERM

EDS CS PSY 305	A LAB IN ED & CS PSYCH	REG	0.00	U			
EDS CS PSY 404	A SPECIAL TOPICS	REG	1.00	U			
ENGLISH 101	A ENGLISH COMP 1	REG	0.00	U			
HEALTH 110	A PERSONAL HLTH/VLNS	REG	3.00	U			
MIL SCI 120	A LEADERSHIP DEVEL TECH	REG	2.00	U			
P E MAJOR 100	A ORIENT TO PHYS EDUC	REG	2.00	U			
SOCIOLOGY 100	A GENERAL SOCIOLOGY	REG	3.00	U			

MINI-TERM

EDS CS PSY 215	M LEARN SKILLS/STUD SYS	REG	3.00	U			
EDS CS PSY 404	M SPECIAL TOPICS	REG	1.00	U			
P E MAJOR 380	M SPECIAL TOPICS	REG	2.00	U			

TPS U attempt	17.00 ernd	9.00	s/p	0.00	qpts		23.00 gpa
UIT U attempt	11.00 ernd	9.00	s/p	0.00	qpts		23.00 gpa
CUM U attempt	16.00 ernd	14.00	s/p	0.00	qpts		34.00 gpa

academic standing: ACAD REVIEW 2ND TERM

Appendix C

Informed Consent Packet**November 24, 1993****Dear UT student athlete:**

Sometime during the first semester of your freshman year at UT you were given the Strong Interest Inventory to help you and the Academic Advising staff know more about your career interests at that time. I am doing my doctoral dissertation on the results of student-athletes' responses over the years to that inventory to see if there are any connections between the way athletes respond when asked about their career interests, and other factors such as size of high school, size of home town, high school GPA, college entrance exam scores and others. This research will be valuable to see if there are programs which need to be developed to further help student-athletes think about themselves and their place in the world of work. It would also help us get a clearer, more accurate picture of the type of student that comes to UT to compete in intercollegiate athletics.

Would you help me in my effort to advance our understanding of the students that we serve by agreeing to let me use the data in your Student Academic History file and your responses on the Strong Interest Inventory in my research? If you agree to participate, please read the attached Informed Consent Form thoroughly so that you are completely aware of the project, and do nothing more. Keep this copy for yourself. If you prefer not to participate, contact me either by phone (615-974-1250 - work) or drop me a note in the envelope provided no later than December 15, 1993. If you are interested in learning the results of my research I will be happy to mail you a summary of them. Thank you for your cooperation.

Sincerely,

**Patrice M. Ryan
Graduate Assistant
Office of Student Life - Men's Athletics**

Informed Consent Form

**Discriminant Function Analysis of the Response Style
of Student Athletes to the Strong Interest Inventory**

The purpose of this form is to seek your cooperation in helping us determine if there are any academic, demographic, or family structure factors which will explain the way in which student athletes as a group respond to the Strong Interest Inventory. With your permission, the results of the Strong Interest Inventory which you took at some point in your time at the University of Tennessee-Knoxville will be examined. In addition, we need your permission to examine the academic, demographic, and family structure information which is in your Student Academic History computer file maintained by the university.

Though data about you will be used, you will have no active participation in this project and so you will not be exposed to any direct discomfort. If you should experience any distress as a result of your permitting access to your computer file for the purposes of this project, please inform the researcher and appropriate referral to a qualified counselor will be made. You may benefit directly from participating in this study by knowing that you have contributed to the body of knowledge that exists regarding the process of career selection for collegiate athletes.

Your identity will never be revealed. This consent form will remain in a locked filing cabinet in the Department of Educational and Counseling Psychology, Room 113, Claxton Education Building. Only the researcher (Patrice Ryan) and her committee chairperson (Dr. Marla Peterson) will have access to the names and data. Your name will be removed from all data used in this study. All the information will be analyzed as a group. Responses will not be analyzed on an individual basis. Any identifying information will be removed from your files prior to being included in the database.

An explanation of the results of the study will be available to you upon your request. Any further questions you might have concerning this study or your participation in it may be answered by contacting Patrice Ryan (researcher) or Dr. Marla Peterson at 974-5131, 108 Claxton Education Building, Main Campus. Your participation is completely voluntary, and you may withdraw from the study at any time without penalty or prejudice.

I have read and understand this explanation of the research project and have had my questions regarding the study and/or my participation in it answered to my satisfaction. I voluntarily agree to participate.

Name

Date

Please send me an explanation of the results ____Yes ____No

Address

Appendix D

Research Permission Letter

Dec 13, 1993

Dear :

I am writing this letter to officially grant permission to Patrice M. Ryan to conduct the research which she is requesting through the attached Form D which amends her original Form A. The limitations of this permission are as follows:

- 1.) **Only** Ms. Ryan will be granted permission to access the Strong Interest Inventory files which are stored in locked filing cabinets in the file room at the Student Counseling Services Center at the University of Tennessee-Knoxville so as to best protect the confidentiality of the students whose profiles will be examined.
- 2.) No names, or other identifying features will be used, and the identity of the students whose profiles will be examined will not be included in any data set for this research project.
- 3.) The examination of the archival information that Ms. Ryan will be using will be restricted to the Strong Interest Inventory profiles.
- 4.) Ms. Ryan will attempt to match the data that she has from a student athlete data set of Strong Interest Inventory profiles to those of non-athlete students at UT and so will select Strong Interest Inventory profiles from those stored at the Student Counseling Services Center which most closely match her sample along the dimensions of year inventory was taken, age and gender of respondent.
- 5.) The only data which will be taken from the archived Strong Interest Inventory profiles will be the **value of the percentage of Total Like Preferences** from each matched profile.
- 6.) Tabulation of the data will take place at the Student Counseling Services Center during the normal working hours of the center.

7.) Under no conditions will any student's Strong Interest Inventory profile be permitted to be removed from the Student Counseling Services Center.

If all of these stipulations are met and the Office of Research Administration approves the proposed changes to the original research proposal, I offer the support of Student Counseling Services Center to Ms. Ryan's research.

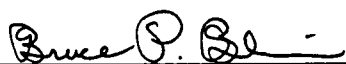
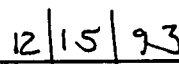
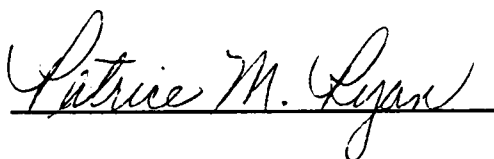
Sincerely,

Director

Appendix E

Confidentiality Agreement

As a member of this research project's team, I understand that I will be accessing student files to create a database of demographic and academic data. This information will be used only for this research project. I understand that the identities of the participants in this study are to be kept confidential. I agree to not share any of this information with anyone except the principal investigator, Patrice M. Ryan.

**Research Team Member****Date****Patrice M. Ryan
Principal Investigator**

VITA

Patrice Marie Ryan was born in St. Louis, Missouri. She is the fourth of five children born to John J. Ryan, Jr. and Dolores K. Ryan. She attended Rockhurst College in Kansas City, Missouri for one year before transferring to the University of Missouri-Rolla, where she graduated with a Bachelor of Arts degree in Psychology in 1974. In April, 1975 she entered training as a Peace Corps Volunteer and completed two years of service in Honduras in December, 1977. She worked in the areas of rural health and community development and stayed in Honduras for two more years working for a private agency that was contracted to train Peace Corps Volunteers. Prior to returning to the United States in March, 1980 she travelled extensively by herself in South America. She obtained a Master of Science degree in Industrial/Organizational Psychology from the University of North Texas, in Denton, Texas, in 1986 while also working for the Denton Independent School District. After leaving Denton she worked for the Texas MAXIMA Corporation, a private contracting firm in San Antonio, Texas until September, 1987 when she entered the Ph. D. program in Counseling Psychology at the University of Tennessee-Knoxville. She completed an internship in Professional Psychology at the Counseling Center at Texas Woman's University in Denton, Texas. She completed her doctoral program in Counseling Psychology in May, 1994.