INTERPERSONAL NEEDS AND VOCATIONAL INTEREST:

IS THERE A RELATIONSHIP?

DISSERTATION

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By

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Several theories have developed in an attempt to understand how personality characteristics impact on occupational behavior. In contemplating occupational choice some theorists have utilized a psychoanalytic approach in viewing occupational choice as an appropriate way of blending the pleasure and reality principles. Other theorists have interpreted occupational choice as a means of fulfilling certain needs. The present study focused on the interpersonal needs of Inclusion, Control and Affection. It was proposed that these interpersonal needs play an integral role in one's choice of occupation. The study focused on three vocational interest categories—Realistic, Enterprising and Conventional. The subjects were male applicants for one of the following occupations (each representative of one of the three previously mentioned vocational interest areas), project manager at a construction site, restaurant manager and accountant. The total number of subjects was 288.

Specifically, the present study investigated the presence of an orientation towards persons and an orientation away from persons and the impact of this on
occupational choice. The study also attempted to extract three factors representing Inclusion, Control and Affection from an array of personality scales. The results supported the presence of a towards person orientation; however, an away from person orientation was not clearly differentiated. Similarly, a factor representing Inclusion was derived but the results failed to find factors representing Control and Affection.

Results indicated a positive relationship between a subject's overt choice of an Enterprising occupation and measured interest. It was hypothesized that subjects with Enterprising vocational interest would have greater overall interpersonal needs than subjects with Conventional or Realistic interests. This hypothesis was not supported. However, further analyses revealed that subjects with an application choice for a restaurant manager's job had a higher need to exert Control than did the other subjects. Support was not found for the hypothesis that subjects with a measured interest for Enterprising occupations would have greater overall interpersonal needs than the other subjects. Further analyses revealed that subjects with Realistic measured interest had a lower need to exert Control, than did the other subjects.
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CHAPTER I

INTERPERSONAL NEEDS AND VOCATIONAL INTEREST:
IS THERE A RELATIONSHIP?

Most individuals enter the job market at approximately age 17, and retire at approximately age 65. Therefore an individual may spend the majority of his adult years, if not the majority of his life, in various work environments. It is also generally true that working individuals spend a third of their work day on the job. Clearly the work world forms an integral part of a person's life and doubtlessly interacts with various aspects of the personality.

An overview of the literature on the impact of the work world on aspects of the personality points to the degree to which mental health may be affected by one's job. Several examples in the literature depict situations where an individual's mental health was disrupted by adverse conditions associated with his work. Margolis and Kroes (1974) relate the story of a business executive who was forced to retire from his firm at the age of 65. Soon after his retirement he became ill and was diagnosed as suffering
from senile psychosis. Through a series of events the firm desperately needed the services of someone with the particular expertise possessed by the retired executive. This information was communicated to the executive and his mental condition improved to the point where he was able to return to work. There he functioned as adeptly as he had prior to his retirement. Another employee was eventually trained to succeed the executive and the gentleman was again forced to retire. The executive became ill once again and died soon thereafter.

This anecdote clearly illustrates the interactional effect between work and mental health. Working at a task which provides emotional as well as intellectual and financial satisfaction is a crucial aspect of a fulfilling lifestyle. The vocational literature is replete with studies investigating the different ways in which personality factors interact with aspects of vocational behavior such as occupational choice, occupational preference and job performance. According to Pryor and Taylor (1986; Pryor, 1981), a clear differentiation needs to be made between expressed vocational choice and occupational entry. Pryor suggests that expressed vocational choice has more "psychological utility" than simply noting an individual's present occupation since the latter criterion may be influenced by contaminating external contingencies such as personal finances and job availability. According
to Pryor and Taylor (1986), an individual’s expressed vocational choice, which may be determined from appropriate interest inventories, is therefore more like the psychological criterion of occupational interests.

The Personality and Vocational Choice

In an attempt to understand how personality characteristics influence occupational behavior, particularly vocational choice, several theories have been developed. From a psychoanalytic orientation, occupational choice may be viewed as a societally acceptable means by which an individual may be able to meld the pleasure and reality principles (Osipow, 1983). In choosing a career, an individual is able to gratify certain immediate needs. For example, an aspiring physician may be gratified by the prestige and status that come with the career, even though the medical student may have several hard years of study ahead. Brill (1949) also emphasized the role of sublimation in vocational choice. Through sublimation one may find expression for a socially unacceptable impulse by engaging in a particular career. A popular example is that of the sadistic person who has found suitable expression for his impulses in a career as a butcher, or as a surgeon.

Other writers have proposed that early experiences in an individual’s life help to influence his vocational choice. More specifically, the concept of identification and conflicts that may arise during the process of
identification have been the focus of much attention. It is often true that the significant other with whom an individual identifies gives some inclination of the factors involved in vocational choice (Osipow, 1983).

In the early sixties, Bordin, Nachmann and Segal (1963) developed a framework for vocational development based on the psychosexual stages of development. They based their theory on research involving three occupational types: accountants, social workers, and plumbers. Bordin and his colleagues identified particular body zones which they perceived as being gratified in these occupations. For example, social workers in their nurturant role are seen as gratifying oral impulses, while plumbers are thought to gratify genital impulses by the nature of their work. They fit together pipes, joints and faucets. Bordin (1984) has modified the theory somewhat and thereby allowed a greater role for ego-analytical concepts such as curiosity, power, justice and concern with right and wrong.

The Need Approach to Career Development

Henry Murray (1938) developed a list of several psychological needs that are involved in human functioning. According to Murray, individuals are affected by tension states. These states, which are produced by needs in combination with environmental "press," motivate individuals to engage in behaviors that serve to reduce the tension. In relation to occupational choice, Darley and Hagenah (1955),
in a review of the literature on vocational interest, personality factors, occupational preference and choice, came to the conclusion that vocational interest patterns are representative of the ways in which an individual may seek to have personal needs met in an occupational setting.

Other researchers have taken various approaches to the issue of needs and occupational involvement. Hoppock's (1957) theoretical approach to vocational choice is based on the thought that people are able to make the best occupational choice when they can identify their own needs and are able to see how a particular job may satisfy those needs. Dipboye and Anderson (1961) researched the stereotypical views of adolescent boys and girls towards various occupational groups. The rationale behind the study is that adolescents at the stage of development when they are considering choosing a career have certain perceptions and expectations of occupational roles. Included in these perceptions are the expectations of how a job will satisfy personal needs. Suziedelis and Steimel (1963) looked at the relationship between psychological needs measured by the Edwards Personal Preference Schedule (EPPS) and vocational interests as measured by the Strong Vocational Interest Blank (SVIB). They found support for their hypothesis that certain needs are significantly related to particular vocational interests. For example, individuals with high needs for achievement and endurance were interested in the
biological and physical sciences. Bohn, in a 1966 study, found support for the hypothesis that certain psychological needs are related to vocational personality types. He used the Adjective Checklist and the Realistic, Intellectual, Social, Conventional, Enterprising, and Artistic vocational interest types derived from the SVIB.

Anne Roe (1956), in developing her theory of career choice, was influenced by Maslow (1954) and his hierarchy of needs. In a Maslovian framework, an occupation enables one to fulfill the basic physiological and safety needs as well as some of the higher level needs for self-esteem and self-actualization. The underlying features in Roe’s (1984) theory are that an individual’s genetic background defines the developmental potential of the individual characteristics. According to Roe, the limitations are more specific for personality and intellectual variables than for attitudinal and interest variables. It is to be noted that Roe’s conception of genetic influence extends to general cultural and environmental factors such as socio-economic status, race and sex. An integral aspect of Roe’s career choice theory is her belief that an individual’s early experiences help to influence vocational interests. The intensity of an individual’s desire to achieve a vocational goal is influenced by the intensity and arrangement of his hierarchy of needs.

In researching aspects of her theory, Roe (1984) has
concentrated a lot of her attention investigating early experiences, particularly relationships with parents, in order to determine how interests and attitudes are influenced by these experiences. Roe proposes that there are two basic orientations which result from childhood experiences and these orientations are thought to be related to occupational choice. They are an orientation toward people and an orientation away from people. A Parent-Child Relations Questionnaire (Roe & Siegelman, 1964) was developed to measure these early experiences.

Several studies have been performed in order to test aspects of Roe's theory. A number of these studies have failed to find empirical validation for Roe's hypothesis that early parental interactions influence an individual's choice of an occupation (Grigg, 1959; Hagen, 1960; Switzer, Grigg, Miller & Young, 1962; Utton, 1962; Levine, 1963; Brunkan & Crites, 1964; Appleton & Hansen, 1969; Byers, Forrest & Zaccara, 1968). Other studies, however, have found some support for other aspects of the theory. Kinnane and Pable (1962) were investigating Super's (1957) developmental self-concept theory of vocational behavior. They predicted that a warm home environment encourages the development of an orientation towards persons. In their findings they found a significant relationship between family cohesiveness and working conditions and associations. Of particular significance for the current study, Levine
(1963) found support for there being a distinct dichotomy in the work world in terms of an orientation toward and an orientation away from people. Jones (1965) also found support for toward-person and away-from-person orientations. These are the "psychological thread," underlying a continuum along which occupational categories defined by Roe (1984) may be plotted. These studies seem to indicate that occupational choice is influenced in varying degrees by the individual's desire to work either closely with other people, or apart from other people. The present study attempted to establish conclusively a link between occupational choice and a toward-person or an away-from-person orientation.

**Interpersonal Needs**

Will Schutz (1966) developed a three dimensional theory of interpersonal behavior. The simple premise underlying Schutz's theory is that "people need people", especially in three kinds of interactions. These relations may be expressed as a need for Inclusion, a need for Control, and a need for Affection. Schutz defines an interpersonal situation as an interaction involving two or more people as opposed to a situation where one or more of the participants may be inanimate. A need experienced by an individual in an interpersonal setting is such that if it is not gratified through the attainment of satisfactory relations with another or others, leads to unpleasant consequences. A
momentary inconsistency between an individual's interpersonal need and his present state of being creates a feeling which Schutz has defined as anxiety.

The interpersonal need for Inclusion may be defined behaviorally as the need to form and maintain satisfactory relationships with others through association and interaction. In more affective terms Inclusion refers to the need to establish and sustain a feeling of mutual trust with other individuals. The need for Inclusion also encompasses the need to experience the self as important and worthy. Schutz (1966) describes the interpersonal need for Control as being the need to establish and maintain adequate relationships with others with regard to control and power. On a more affective level, the need for Control refers to the desire to form and maintain a feeling of mutual esteem and responsibleness of others. In individual terms the need for Control also refers to the desire for the individual to feel as if he is a capable and responsible person. Schutz (1966) has stipulated his concept of Affection refers only to dyadic relationships. The interpersonal need for Affection is defined as being the need to establish and maintain a satisfactory relationship with another with regards to love and affection. On an affective level one experiences the need to sustain a feeling of mutual affection with other people. The interpersonal need for Affection also refers to the need to feel that one is
Each of the interpersonal needs encompasses two dimensions of behavior. One is an "expressed" or manifested behavior on the part of the individual in the need areas of Inclusion, Control and Affection. The other is a "wanted" behavior; this refers to what the individual wants from others in each of the three interpersonal need areas.

There are particular behaviors that typify each of the interpersonal need areas. These behaviors are directed towards the satisfaction of the particular need (Schutz, 1966). Some terms that convey positive attempts at Inclusion are "mingle," "interact," "belong," and "togetherness." Some terms that convey a negative sense of Inclusion are "outcast," "lonely," "detached," and "withdrawn." Control behaviors generally refer to decision-making processes. Some of the terms that connote a positive sense of Control are "authority," "dominance," "power," and "leader." These words convey a negative sense of Control or a lack of control—"rebellion," "follower," "anarchy," and "henpecked." Affection behavior refers to close emotional feelings between two people. Some phrases conveying a positive sense of Affection are "emotionally close," "friendship," "love," and "positive feelings." Other terms which convey a primarily negative sense of Affection are "hate," "dislike," "emotionally distant," and "cool."

In each of the interpersonal need areas Schutz defines
varying degrees of interpersonal behavior. (a) Deficient--the individual does not directly attempt to satisfy the need. (b) Ideal--the need is adequately being satisfied, (c) Excessive--the individual fully focuses attention, perhaps to the exclusion of other things, towards the fulfillment of the need. The fourth category (d) Pathological--represents extreme behavior be it deficient or excessive, which may give rise to psychotic conditions.

1. Inclusion Types

The Undersocial

According to Schutz (1966) the undersocial person avoids associating with others but unconsciously wants others to pay attention to him. His secret fear is that no one will ever be interested in him; therefore, he strives towards self sufficiency.

The Social

This individual has a well established identity and individuality. He or she is capable of strong commitments to others yet is also able to be comfortably alone.

The Oversocial

This individual is afraid of being alone and neglected. He or she constantly seeks to be involved with other people.

Inclusion Pathology

Schutz (1966) suggests that there is a relationship between disturbances in the Inclusion area and psychoses. He further suggests that a schizophrenic may be
representative of an undersocial type carried to the extreme. The oversocial type at the pathological end of the scale would be lacking in identity and would be unable to be alone.

2. Control Types

The Abdicrat

This person fears taking responsibility in interpersonal situations. Therefore he would rather act in a submissive role and have someone else take charge.

The Democrat

This person feels confident that he or she is a responsible and capable individual. He or she therefore does not need to shirk responsibility or to prove himself or herself to anyone.

The Autocrat

This individual is governed by a strong desire to dominate other people. He fears that people do not believe that he is a capable leader and he therefore strives to disprove this unsettling thought.

Control Pathology

Schutz (1966) characterizes this pathological state by an unwillingness to accept any kind of control.

3. Affection Types

The Underpersonal

This individual is afraid that no one likes him, that he is unlovable. Rather than having this proved to him, he
prefers to maintain an emotional distance from others.

**The Personal**

This individual is successfully able to establish a warm interpersonal relationship with another person, and is also able to maintain an emotional distance in situations that require it. This person wants to be liked but he is able to accept it if someone dislikes him.

**The Overpersonal**

Such an individual strives to establish close personal relations with others. This person fears being rejected and may strive through subtle or direct means to manipulate others into a close relationship.

**Affection Pathology**

Schutz (1966) states that neuroses are often attributed to difficulties in the area of Affection.

As has been previously implied, one of Schutz's (1966) basic postulates underlying his theory of interpersonal needs is as follows:

(a) "Every individual has three interpersonal needs: inclusion, control and affection."

(b) "Inclusion, control and affection constitute a sufficient set of areas of interpersonal behavior for the prediction and explanation of interpersonal phenomena." (Schutz, 1966, p. 196).

If Schutz's postulate is correct, particular patterns of interpersonal need should correlate significantly with an
individual's tendency to enter a particular vocational field and his or her tendency to indicate specific vocational preferences. One of the theorems derived from the aforementioned postulate states: "If a representative battery of measures of interpersonal behavior is factor-analyzed, the resulting factors will reasonably fall into the three need areas, inclusion, control, and affection." (Schutz, 1966, p. 196). This theorem suggests that particular personality characteristics which relate to interpersonal behavior should statistically cluster into factors which may be described as a need for Inclusion, a need for Control, and a need for Affection. The present study attempted to extract these factors.

**Occupational choice through application and vocational preference**

In recent years researchers have questioned a basic underlying assumption in the study of vocational behavior. This is the belief that the measurement of an individual's vocational interest through standardized assessment techniques is a more accurate means of predicting future participation in an occupation than accepting a self-report or expressed choice of occupation (e.g., Dolliver, 1969; Dolliver & Will, 1977). Several subsequent studies have reported that a subject's expressed choice yields greater predictive validity of a later occupation than do various interest measures (Bartling & Hood, 1981; Borgen & Seling,

It is necessary at this point to differentiate between two major constructs which were used in the current study, these constructs were "application choice" and "measured interest." Super (1947) defined the term "expressed choice" as the occupation an individual offers in response to a question about career aspirations. He has used the term "inventoried choices" to mean determination of occupational interest with the use of an interest measure. In the present study subjects were recruited from a pool of applicants for specific occupational positions. As a part of the application process, each of these applicants is required to complete a measure of vocational interest, as well as other measures of personality and intellectual ability.

In this study the term application choice refers to an individual's overt expression of interest in an occupation through the submission of a job application. The term application choice is preferred to expressed choice because the subjects were not directly questioned about their vocational preference. However, the fact that the subjects were applying for specific jobs allows the opportunity to see the job application as an expression of interest on
their part. The term measured interest was used to represent vocational interest profiles derived from the vocational interest inventory completed by each subject. This definition is very similar to the one proposed by Super (1947) for inventoried interests.

A major focus of this study was to investigate the interpersonal needs of individuals in specific occupational groups. This study was not concerned with repeating previous research projects in order to assess whether expressed or application choice or measured interest is the better predictor of future occupations. Instead, an attempt was made to determine the relatedness of application choice and interpersonal needs and the relatedness of measured interest and interpersonal needs. In order to gain a clearer understanding of how there might be a relationship between these constructs, we now turn to Holland's (1959, 1963, 1966, 1973, 1985) theory of vocational personalities and the environment.

A fundamental premise in Holland's theory is that occupational choice represents a further expression of the personality (Osipow, 1983). He therefore believes that people are able to project thoughts and ideas of themselves and of the work world by expressing their liking for various occupational titles. A basic assumption of Holland's theory is that "People search for environments that will let them exercise their skills and abilities, express their attitudes
and values and take on agreeable problems and roles" (Holland, 1973, p. 4). It is also Holland's belief that an individual's behavior results from the interaction between personality and environmental factors.

**Holland's Vocational Interest Typologies and Environmental Models**

Holland (1959, 1963, 1966, 1973, 1985) developed his theory on the premise that there are six basic kinds of working environments—Realistic, Investigative, Artistic, Social, Enterprising and Conventional. Each of these environments is dominated by people with certain personality characteristics. The Realistic type person is one who prefers working in an environment where procedures are structured, systematic and well ordered. Such a person would enjoy working with tools, objects or machines rather than with people. Realistic people tend to exhibit mechanical, electrical, agricultural and other technical skills and they may not be competent in the social and educational sphere (Holland, 1985). Some of the terms that Holland has used to describe the Realistic person are practical, asocial, thrifty, materialistic and self-effacing.

The Investigative person is one who has a great interest in researching and inquiring into the mysteries of biological, physical and cultural phenomena. These individuals are usually endowed with scientific and
mathematical skills and tend to avoid situations where they need to be persuasive. They are described as being introspective, reserved, rational, precise, critical, analytical and intellectual (Holland, 1985). The Artistic person enjoys an ambiguous, unstructured environment which allows them to express their creative abilities in writing, drama, music or art. Holland (1985) suggests that these individuals are often deficient in clerical or business competencies. Artistic people are often perceived as being expressive, imaginative, intuitive, nonconforming, original and sensitive (Holland, 1985).

The Social type person is oriented towards working in an environment which allows them to fulfill a service role with people. This may be in the form of teaching, nursing or in some other manner performing a service for others. Consequently the socially oriented person develops interpersonal and educational skills and is not as competent in technical and manual skills. Social types may be described as being helpful, cooperative, patient, friendly, tactful, sociable and responsible (Holland, 1985).

An individual with Enterprising interests experiences a vocational preference for activities that enable them to manipulate people for economic benefits or in pursuit of an organizational goal. These individuals may not be efficient in scientific endeavors but they often have strong leadership skills and are adept at persuading others. The
Enterprising individual may be described as being ambitious, extroverted, domineering, sociable, exhibitionistic and acquisitive (Holland, 1985).

The Conventional individual prefers activities that are well organized, involves the systematic manipulation of data for example, maintaining records, filing, reproducing and arranging data according to the guidelines of a prescribed plan. Such individuals are therefore averse to ambiguous situations that necessitate the employment of creative skills. Conventional individuals are perceived as having computational and clerical skills, and are often conscientious, conforming, thrifty, practical, methodical, inflexible and unimaginative (Holland, 1985).

The interaction of an individual with his or her environment plays an important part in determining to some extent, the individual's behavior. Consequently, Holland (1966; 1985) has formulated six environmental models that correspond to the six personality typologies. Holland has offered as a definition of an environmental model a "situation or atmosphere created by the people who dominate a given environment" (Holland, 1985, p. 34). As a result an environmental model would carry the characteristics of the individuals who dominate that model. If an individual of a particular personality type works in an environment which corresponds to that personality type, a number of favorable outcomes should result, for example job satisfaction, a high
level of achievement and vocational stability (Holland, 1985).

Personality patterns and environmental models may be depicted as a profile consisting of two to six variables. The number of variables used in portraying a pattern is a matter of judgement and convenience (Holland, 1985). For example an individual with predominantly Social qualities may have Enterprising and Conventional qualities on a secondary and tertiary level. Holland (1966; 1985) has used a hexagonal model to illustrate the layout of the six typologies.

![Holland's hexagonal model](image)

**Figure 1**

Holland's hexagonal model depicting the six vocational interest types

The hexagonal model helps to elucidate some of the theoretical concepts that are related to Holland's typologies. One such concept is consistency. Profile
patterns which are composed of types which are adjacent to each other on the hexagon, are said to be most consistent, for example Social-Enterprising. Personality patterns which are composed of types which are distant from each other on the hexagon are said to be least consistent, for example Investigative-Social (Holland, 1985). The degree of consistency in personality patterns refers to extent of relatedness among the variables in the profile. It is thought that the degree of consistency affects vocational preference, specifically individuals with more consistent profiles are presumed to be more predictable than individuals with inconsistent profiles (Holland, 1985). The concept of consistency also holds true for environments, consistent environments are thought to be more stable and predictable than inconsistent environments.

A person with predominantly Enterprising interests working in an Enterprising environment is a situation with a high amount of congruence. A most incongruent situation would be an individual with predominantly Enterprising interests working in an environment which has predominantly Investigative qualities (Holland, 1985). The incongruence of the fit between an individual and his or her environment would in most probability produce a negative impact on worker satisfaction and job performance.

Much of the empirical research of the utility of Holland's concepts of consistency and congruence has been
performed using high school and college students as a subject population (Wiley & Magoon, 1982; O'Neil & Magoon, 1977; O'Neil, Magoon & Tracey, 1978; Erwin, 1982; Werner, 1974). These studies used GPA and choice of college major as a criterion against which they compared the subjects' consistency and congruence score.

In one such study, Helms and Williams (1973) using a stratified random sampling procedure obtained a sample that represented each of the six interest types. Subjects were then randomly assigned to each of six Job Experience kits. These kits were designed to represent a working model of six different types of jobs. After working with their assigned kit, subjects completed a questionnaire which tapped their perception of congruency of self and each of the job samples they had performed. Results of the study supported the hypothesis that subjects with different vocational interest patterns responded differently to the job samples. Support was also obtained for the hypothesis that perception of congruity may be predicted through the use of the hexagonal model.

Spokane (1985) in a recent review of research on person-environment congruence in Holland's vocational theory concludes that research studies have consistently shown significant positive relationships between congruence and job satisfaction, stability of occupational choice, academic performance and persistence, perceived congruence and
personality. Spokane also indicated that studies have failed to find significant relationships between congruence and self-concept and sociability.

Walsh and Barrow (1971) used the California Psychological Inventory (CPI) and the Vocational Preference Inventory (VPI) to explore differences obtained on personality variables between freshmen students who had made congruent choices and those who had made incongruent choices of a major field of study. The results of the study showed no main effect for congruence. Walsh and Barrow (1971) suggest that their failure to find a significant relationship may have been due to the particular personality variables which they used. Significant interaction effects were found on six of the twenty-three scales between sex and congruence. Specifically, congruent females were shown to be more vocationally responsible and mature than congruent males. This underscores the necessity of formulating separate hypotheses regarding congruence for each sex.

In a later study Walsh (1974) again explored the difference reported on personality variables between subjects who had made congruent choices and those who had made incongruent occupational choices. He used the Omnibus Personality Inventory (OPI), the CPI and Holland's Self-Directed Search (SDS). The sample for this study was a group of 29 male and 24 female upperclass students. The index used to determine congruence was first letter
agreement between the subject's vocational code derived from the SDS and the predetermined vocational code for the subject's occupational choice. The results of this study generally suggest that congruent males report being more energetic, planful, ambitious, confident, productive, socially acceptable and they value intellectual achievement more than the incongruent male and female groups. The incongruent male group reported being self-confident, impulsive, aggressive, lonely, insecure, unambitious and pessimistic about their occupational futures. The incongruent females reported being conventional, insecure, retiring, lonely, unambitious, restricted in interests, and pessimistic about their occupational future.

In a third study investigating the relationship between congruent, incongruent and undecided college major choices and personality, Walsh and Lewis (1972) recruited a sample of freshmen. The index used to determine congruence was first letter agreement between the subject's VPI code and the code for their expressed major field of study. Walsh and Lewis (1972) used the OPI as a measure of personality characteristics. The results of this study suggest that congruent males, tend to be analytical, logical, socially accepted, in a state of well being, less anxious and less impulsive than the other groups. The undecided male subjects reported feeling more imaginative, impulsive, socially alienated, tense and distrustful in their relations
with others.

The present study investigated the presence of a relationship between the interpersonal needs of an individual in the areas of Inclusion, Control and Affection and their propensity to be congruent or incongruent in their choice of occupation. It is notable that the majority of studies relating congruence to personality variables have been performed using a college population (Spokane, 1985). In some respects this limits the generability of the results of these studies, since a college population may be viewed as somewhat of a microcosm apart from the everyday work world. Also with reference to these studies, Spokane (1985) himself comments on the small sample sizes utilized by the researchers. An attempt was made to overcome these limitations in the present study by utilizing sizeable groups of prospective employees. In more specific terms, this study assessed interpersonal needs of individuals applying for a job as restaurant manager, an accountant, or as a supervisor of a construction firm.

According to Holland's occupational classification scheme, the job of a restaurant manager is comprised of Enterprising factors on a primary level, Social factors on a secondary level and Realistic factors on a tertiary level (Gottfredson, Holland & Ogawa, 1982). In greater detail a restaurant manager is expected to be outgoing and self-confident with a keen business sense towards organizing the
work environment so that the maximum benefit may be gained and suitable advancements may be made in the manager's career. A restaurant manager would also be required to possess social skills that would enable him or her to operate efficiently in a predominantly people oriented business. He or she would also be expected to understand the operation of the equipment used for cooking, lighting, ventilation and storage in the restaurant business.

The Dictionary of Holland Occupational Codes (Gottfredson et al., 1982) has listed several occupational codes for various types of accountants. The present study is concerned with individuals who have applied for positions as management accountants for individual companies. These accountants handle the financial records of the firm for which they work, and they provide executives with financial information which is used in making business decisions. Management accountants may work in areas such as budgeting, taxation, costs or investments (U.S. Dept. of Labor, 1986). The job of a management accountant may be comprised of Conventional factors on a primary level, Realistic factors on a secondary level and Social factors on a tertiary level (Gottfredson et al., 1982). Accountants are expected to have an aptitude for math. They should be able to compare, analyze and efficiently interpret facts and figures. Computers are now increasingly being used in the field, therefore accountants need to understand how to use these
machines. As part of their job accountants relay information to supervisors, co-workers and customers, in order to be able to do this, they should be able to communicate well in writing and orally.

The job of project manager on a construction site may be comprised of Realistic factors on a primary level, Conventional factors on a secondary level and Social factors on a tertiary level (Gottfredson et al., 1982). These project managers function in the role of construction supervisors, very often project managers are experienced construction workers themselves. In order to perform their job well they need to be experts in their craft, they should also be able to read blueprints and plans. As part of their job project managers formulate and maintain records on the materials being used on site, they also pay close attention to the progress of the work. During times of labor disputes, they may be required to meet with union representatives, therefore they should be able to communicate clearly and to bargain diplomatically.

Statement of Problem

The present study attempted to confirm Roe's (1984) proposal that there is an orientation toward-persons and an orientation away-from-persons and that these are related to vocational choice. As has been cited earlier in this study Kinnane and Pable (1962), Levine (1963), and Jones (1965) have each found some support for Roe's claim for a toward-
person and an away-from-person orientation. The present study therefore attempted to replicate these findings and to link it to vocational interest by using the personality traits defined in the Guilford Zimmerman Temperament Survey (GZTS) and the personality and vocational interest scales of the VPI.

As has been previously discussed, Schutz (1966) has stated that a factor analysis of measures related to interpersonal behavior, should yield three factors, a need for Inclusion, a need for Control, and a need for Affection. It was expected that a factor analysis of appropriate scales of the GZTS and the VPI would yield the three major factors.

Laing, Swaney and Prediger (1984) and other researchers have reported in their studies that expressed choice of a vocation has a higher predictive value than the outcome of various vocational interest measures. Instead of attempting to identify which of these two would be the better predictor, the present study examined the relatedness between application choice (which has been previously defined as the overt expression of an individual's interest in an occupation through the submission of a job application), and interpersonal needs. The study also examined the relatedness between measured interest and interpersonal needs.

In recapitulating the research that has been done concerning congruence, Walsh (1974) has found that congruent
males report being more energetic, ambitious, confident, planful, productive, socially acceptable and they value intellectual achievement more than incongruent males and females. Results of another study (Walsh & Lewis, 1972) suggest that congruent males tend to be analytical, logical, socially accepted, in a state of well being, less anxious and less impulsive than incongruent males. Therefore it would seem reasonable to expect congruent individuals to exhibit ideal patterns in the three areas of interpersonal need. This would imply the presence of a curvilinear relationship between congruence and interpersonal needs. Individuals with moderate levels of interpersonal need should tend to be more congruent than individuals with either very high or very low levels of interpersonal need.

In more specific terms the hypotheses for the present study were as follows.

**Hypotheses**

**Hypothesis I**

A factor analysis of appropriate scales from the Guilford Zimmerman Temperament Survey (GZTS), the FIRO-B and the VPI will yield two major factors representing a toward-person and an away-from-person orientation.

**Hypothesis II**

A factor analysis of appropriate scales from GZTS and the VPI will yield three factors representing the interpersonal need areas of Inclusion, Control and
Affection.

**Hypothesis III**

A significantly positive relationship will be ascertained between the code representing the subjects' application choice - the occupation to which they are applying and the code representing vocational interest, derived from the VPI.

**Hypothesis IV**

Subjects who have demonstrated an application choice for an Enterprising occupation (i.e. as a restaurant manager) will indicate greater needs for interacting with other people than those subjects who have demonstrated an application choice for either Conventional (i.e. as an accountant) or Realistic (i.e. as project manager at a construction site) occupations. Enterprising types will obtain higher INTRPNDS scores, than Conventional or Realistic types.

**Hypothesis V**

Subjects with a measured interest for Enterprising occupations will indicate greater needs for interacting with other people than those subjects with measured interests for either Conventional or Realistic occupations. Enterprising types will obtain higher INTRPNDS scores, than Conventional or Realistic types.

**Hypothesis VI**

Subjects who obtain mid-range scores on the FIRO-B
scale representing the sum of the three interpersonal needs, will tend to be more congruent in their choice of vocations than subjects who obtain extreme scores on the FIRO-B.
CHAPTER II

METHOD

Subjects

The subjects for this study were 288 caucasian males, varying in age from 20 to 57 years. There were 140 restaurant managers, 43 project managers and 105 accountants. Some of the statistical analyses entailed using specific criteria in looking at the data. Therefore some statistical analyses were performed with fewer subjects. These men were applicants for one of three occupations. The occupations which were researched were restaurant manager, accountant and project manager at a construction firm.

Instruments

The Fundamental Interpersonal Relations Orientation - Behavior (Schutz, 1967). The FIRO-B is a 54 item questionnaire which has been developed into a group of Guttman scales. The test yields information in the interpersonal construct areas of Inclusion, Control and Affection (Schutz, 1966). Within each of these areas, there is a "wanted" and an "expressed" dimension. Therefore the FIRO-B yields six scores which are defined as (1) wanted
Inclusion (wI), (2) expressed Inclusion (eI), (3) wanted Control (wC), (4) expressed Control (eC), (5) wanted Affection (wA), and (6) expressed Affection (eA). The expressed dimension represents the extent to which a person behaves towards others, and the wanted dimension represents the extent to which he wants others to behave towards him. Inclusion refers to the need to include others in social groupings and wanting to be included by others. The area of Control refers to the degree to which a person takes charge in a situation and the degree to which he wants others to assume control. The interpersonal area of Affection refers to a person’s need to express warm and loving feelings towards another and the desire to have others express those feelings towards him.

There has been somewhat of a controversy in the literature regarding the validity of the FIRO-B. In 1967 Kraemer administered the FIRO-B to a group of undergraduates who were enrolled in an introductory psychology course. The subjects rated themselves on the interpersonal dimensions of Inclusion, Control and Affection after having completed the FIRO-B. Kraemer correlated the resulting data and found that there was a significant relationship between five of the six FIRO-B scales and the self-ratings. The eI scale did not significantly correlate with subjects’ self ratings. Froehle (1970) attempted to replicate Kraemer’s results. His subjects were a group of NDEA Advanced Counseling and
Guidance students. Froehle found only one significant correlation, this was between the eC scale and self-ratings, his conclusion was that the FIRO-B did not exhibit construct validity. In explaining his conflicting results Froehle referred to the "relevance" factor studied by Foreman and James (1969); perhaps the FIRO-B scales found to be significant in the Kraemer study were relevant to those subjects, while the eC scale was the only scale relevant to the subjects in the Froehle study.

Gluck (1979) provided an alternative explanation for the different results obtained by Kraemer and Froehle. He suggested that their samples were very different, particularly in the areas of training in psychology and their level of knowledge about the test. Froehle's subjects were more psychologically aware than Kraemer's and prior to taking the test they were given more detailed information about the FIRO-B and were given access to the test instrument. Gluck (1979) replicated Kraemer's study using a sample of students in a management course. He obtained significant correlations between all of the FIRO-B scales and the self-reports of the subjects. Gard and Bendig (1964) also found support for the construct validity of the FIRO-B among a group of psychiatric patients. It therefore seems apparent that the construct validity of the FIRO-B has been adequately established.

Schutz (1967) reports a mean reliability coefficient of
.76 for the FIRO-B scales. However Gilligan (1975) has reported a mean reliability coefficient of .69.

In the present study, the six FIRO-B scales were summed together to produce an overall interpersonal needs scale which has been called the INTRPNDS score. This score was used in the performance of statistical analyses in the present study.

The Guilford Zimmerman Temperament Survey (Guilford, Zimmerman & Guilford, 1976). The GZTS is a 300 item true-false questionnaire. These items may be classified into 10 scales which represent separate character traits.

(1) General activity (G)--measures a tendency of the individual to execute tasks at a high rate of speed and to utilize a large amount of metabolic energy. The high G individual may be described as being very active, the low G individual may be described as being lethargic. Test-retest reliability coefficients of .67 have been reported after a year had elapsed between test administrations.

(2) Restraint (R)--generally measures responsibility or maturity. The high R individual exhibits self-restraint which may approach compulsiveness, the low R individual is spontaneous and impulsive. A test-retest reliability coefficient of .74 over the period of a year has been reported for this scale.

(3) Ascendance (A)--differentiates between individuals
with leadership qualities and those who are more submissive. After one year, test-retest reliability coefficients of .53 have been reported.

(4) Sociability (S) - measures the quality of gregariousness. High S individuals are most comfortable in social settings, low S individuals prefer little social interaction. A test-retest reliability of .71 has been reported for this scale after a one year period.

(5) Emotional Stability (E) - can best be described as being "a measure of stableness of mood" (Guilford et al., 1976, p. 292). This scale is able to predict the stability of the personality profile obtained from the GZTS or from other tests. A test-retest reliability coefficient of .71 over the period of a year has been reported for this scale.

(6) Objectivity (O) - measures an individual's capacity to view and interact with others from an objective, detached stance. High O's are able to respond to situations and people without appearing to involve any personal feelings. The low O individual may be described as being sensitive and able to empathize with others. A test-retest reliability of .64 has been reported for this scale over the period of a year.

(7) Friendliness (F) - is a measure of a person's tendency to be amiable. High F individuals automatically respond to people as if they are friends. It is difficult for the high F person to render disciplinary action. The
low F individual is generally suspicious and hostile. A test-retest reliability of .65 has been reported for this scale.

(8) Thoughtfulness (T)—is a measure of a compulsively inquiring mind. A person obtaining a high score on the T scale is concerned with knowing why things occur and the theories and principles behind happenings. A low T person is unconcerned with theories, principles or causes. A test-retest reliability of .58 has been reported for the T scale over the period of a year.

(9) Personal Relations (P)—measures the tendency of the individual to accept other people. A high P score is desirable, an individual with such a score recognizes and accepts the rights and integrity of other people. Someone with a low P score operates with the misconception that the only acceptable people are individuals similar to himself. A test-retest reliability coefficient of .64 has been reported for this scale after the period of a year.

(10) Masculinity (M-F)—this scale "involves acceptance of the traditional socio-cultural male-female attitudes toward masculinity and femininity" (Guilford et al., 1976, p. 298). Men who obtain high scores and women who obtain low scores on the Masculinity scale are said to entertain traditional sex role identifications. While women who obtain high scores and men who obtain low scores on this scale may be exhibiting weak sex role identification. A
test-retest reliability of .80 has been reported for this scale.

The Vocational Preference Inventory (Holland, 1978) is a personality measure composed completely of occupational titles. To complete the inventory an individual indicates whether he or she likes the occupations listed. The primary purpose of the VPI is to assess personality characteristics, but the VPI is also useful for providing information on vocational interests. The six scales of the VPI which measure vocational interest are the Realistic, Intellectual, Artistic, Social, Enterprising and Conventional scales. These scales incorporate the major dimensions utilized in vocational interest inventories. Moderate to high reliability ratings have been reported for the VPI. Among a sample of men the median test-retest reliability coefficient was .56 and among a corresponding sample of women the median test-retest coefficient was .50.

There are five additional scales of the VPI which yield some information regarding personality including the test taker's response set. The Self-Control scale measures the ability to refrain from impulsively acting out in thought, word or deed. The Masculinity-Femininity scale may be used to estimate the extent to which traditional male and female sex-typing has influenced an individual's choice of traditionally "male" or "female" occupational roles, the individual's identification with these roles and any
conflicts which may result from the identification. The Status scale may be used to estimate self-esteem and concern for prestige and power. The Infrequency scale is a measure of social desirability to the extent that high scores indicate atypical vocational preferences while low scorers tend to make popular vocational choices. The Acquiescence scale measures the individual's tendency to indicate a preference for several vocational choices. Individuals who indicate a liking for several occupations are seen as frank and sociable. Extremely high scores however may indicate poor judgement.

Procedure

The present study was archival in nature, the data was collected between the years 1984 and 1986. As part of their application procedure, each of the job applicants was required to complete a battery of tests including the FIRO-B, GZTS and the VPI. These tests were administered by a firm, based in a large southern city, which performs psychological consultations to management.

Statistical Analysis

Two factor analyses were performed on the data. A varimax rotation was used. The first analysis specified a criterion of two factors, the scales used in the analysis were as following: FIRO-B scales eI, wI, eA, wA, VPI scales Investigative, Social, Enterprising, Artistic and GZTS scales S, O, F, P. This factor analysis was designed to
investigate the presence of an orientation towards persons and an orientation away from persons. The second factor analysis specified a criterion of three factors. The scales used were all six vocational interest scales of the VPI and the GZTS scales S, O, F, P. This analysis was designed to investigate the presence of three factors representing Inclusion, Control and Affection. The scales used in these analyses were chosen based on the test constructor's descriptions and their resemblance to the factors sought.

An ANOVA was performed to assess the relationship between application choice and the INTRPNDS score, an ANOVA was also performed to assess the relationship between measured interest and the INTRPNDS score. A chi-square analysis was performed in order to investigate the relationship between congruence of vocational choice and mid-range or extreme INTRPNDS scores. A chi-square analysis was used to assess the relationship between the code representing application choice and the code representing measured vocational interest. The SPSS-X statistical package was used to perform statistical analyses.
CHAPTER III

RESULTS

The first hypothesis of the study states that if a factor analysis is done using appropriate scales from the GZTS, the FIRO-B and the VPI, two factors will result representing a toward person orientation and an away from person orientation. Table 1 presents the factor matrix illustrating the factor loadings and the communality, which is the portion of the variance explained by each factor. The two factors which were extracted are called Interpersonal Warmth and Dispassionate Friendliness. Table 2 presents the eigenvalue for each factor. The eigenvalue is the total amount of variance accounted for by the factor. Table 2 also presents the percentage of intervariable variance which is accounted for by the factor. The percentage of variance accounted for by the two factors were 22.9 percent for the Interpersonal Warmth factor, and 15 percent for the Dispassionate Friendliness factor. The assumptions to be considered when using a factor analysis procedure include normal distribution for each variable and homoscedasity of variables. The cut-off point for defining a high factor loading was .40. The results reveal that each
variable which met the criteria for a high factor loading, grouped exclusively on one of the two factors. Loadings ranged from .48 to .80 for Interpersonal Warmth and from .72 to .80 for Dispassionate Friendliness. The average loading is .70 for Interpersonal Warmth and .72 for Dispassionate Friendliness. The obtained results partially support the hypothesis. The variables which loaded on the Interpersonal Warmth factor were FIRO-B scales wI, wA, eI, eA and GZTS scale S. The variables which loaded on the Dispassionate Friendliness factor were GZTS scales P, O, F. The Interpersonal Warmth factor tends to describe an orientation towards persons. The Dispassionate Friendliness factor describes a detached association with people which in a work-related setting may actually represent an inclination to avoid people. It is noteworthy that the extracted factors explained only 38 percent of the variance leaving 62 percent unexplained.

The second hypothesis of this study states that a factor analysis of pertinent scales from the GZTS and the VPI will yield three factors representing the interpersonal need areas of Inclusion, Control and Affection. Table 3 presents the factor matrix illustrating the factor loadings and the communality of each variable. The three factors which were extracted are called Dispassionate Friendliness, Independent Work Interests and People Orientation. Table 4 presents the eigenvalues for each factor and the percentage
of intervariable variance accounted for by each factor. The percentage of variance accounted for by the three factors were 20.4 percent for Dispassionate Friendliness, 16 percent for Independent Work Interests and 13 percent for People Orientation.

Once again each variable that met the criteria for a high factor loading, grouped exclusively on one of the three factors. The loadings range from .736 to .798 for Dispassionate Friendliness, .864 to .868 for Independent Work Interests and .540 to .689 for People Orientation. The average loading for Dispassionate Friendliness is .77, for Independent Work Interests it is .87 and for People Orientation it is .62. The variables which loaded on the Dispassionate Friendliness factor were GZTS scales O, P, F. The variables which loaded on the Independent Work Interests factor were VPI scales Investigative and Artistic. The variables which loaded on the People Orientation factor were VPI scales Enterprising and Social, and GZTS scale S.

The obtained results partially support the hypothesis. The People Orientation factor most closely resembles the interpersonal need area of Inclusion but neither of the other two factors resemble the interpersonal need areas of Control or Affection. In this analysis, 49 percent of the total variance was accounted for.

The third hypothesis states that there is a significantly positive relationship between the code
representing the subjects' application choice and the code representing measured vocational interest. Specifically, it was predicted that there would be a significantly positive relationship between Enterprising vocational interest and application for a restaurant manager's job, between Conventional vocational interest and application for an accountant's job, and between Realistic vocational interest and application for a project manager's job. Table 5 illustrates the results of the chi-square analysis employed for this purpose. The groups of subjects were categorized as either having obtained high scores in the predicted vocational interest category or as having obtained high scores in a non-predicted category.

Table 5 illustrated that 122 of the 242 subjects obtained high scores in the predicted vocational interest category and 120 subjects obtained high scores in other non-predicted categories. The resulting overall chi-square is significant beyond the .001 level. An examination of Table 5 reveals that while most of the subjects with an application choice for a restaurant manager's position obtained high scores in the expected vocational interest category, most of the subjects with an application choice for either an accountant's position or a project manager's position obtained high scores in a non-predicted vocational interest category. A second chi-square was performed excluding subjects with an application choice for a
restaurant manager's position. Table 6 presents the results from this procedure. The overall chi-square is non-significant $X^2 = 0.89, p > .05$. Therefore the present hypothesis is partially supported. Specifically, there is a significantly positive relationship between vocational interest and individuals with an application choice for an Enterprising type job. However the relationship between vocational interest and application choice for either a Realistic or a Conventional type of job, is non-significant.

The fourth hypothesis states that subjects with an application choice for an Enterprising job will obtain a higher INTRPNDS score than subjects with an application choice for Conventional or Realistic jobs. The INTRPNDS score was calculated by summing all six FIRO-B scale scores. Table 7 presents the means and standard deviations for subjects according to application choice. Table 8 presents the summary of the one-way ANOVA that was performed to test the hypothesis.

As is indicated in Table 7 the means for each group range from 25.14 to 26.56 with a total mean of 25.53. The $F$ score was non-significant $F (2, 285) = 0.44 (p > .05)$ and therefore the results fail to support the hypothesis.

The fifth hypothesis states that subjects with a measured interest for Enterprising occupations will obtain a higher INTRPNDS score than those subjects with a measured interest for Conventional or Realistic occupations. Table 9
contains the means and standard deviations for these groups. Table 10 contains the summary of the one-way ANOVA which was used to test this hypothesis.

As is indicated in Table 9, the means for the groups range from 25.00 to 26.10 with a total mean of 25.74. The F score was non-significant $F(2, 179) = 0.47 \ (p > .05)$, therefore the results fail to support the hypothesis.

The sixth and final hypothesis states that subjects who obtain mid-range INTRPNDS scores will tend to be more congruent in their vocational choice than subjects who obtain extreme scores. Table 11 depicts the results of the chi-square analysis used to investigate this hypothesis. For this analysis extreme scores were determined to lie between 1 and 17 and between 37 and 54. Moderate scores were determined to lie between 18 and 36. 72 percent of the congruent sample obtained moderate scores but only 29 percent of the non-congruent sample obtained extreme scores. The resulting $X^2$ proved to be non-significant $X^2 = 0.093, \ p > .05$, thus failing to support the hypothesis.

Additional Findings

Although the ANOVA performed to investigate the relationship between the INTRPNDS score and the subjects' application choice proved to be non-significant, it was felt that a look at the individual FIRO-B scales may yield a significant relationship with application choice. Table 12 presents the means and standard deviations for each of the
six FIRO-B scales by application choice.

Table 13 shows the results of the four classic MANOVA tests, the results of three of these tests were significant at the 0.05 level of significance. Univariate $F$ tests of the individual dependent variables produced a significant $F$ for the dependent variable expressed control (eC). Further analyses were conducted in order to determine which group of subjects differed on the expressed control variable. The Scheffe method and the Student-Newman-Keuls procedure were used to identify significance at the .05 level. The results indicated that subjects with an application choice for a restaurant manager's job differed significantly from subjects with an application choice for an accountant's or project manager's job. Subjects with an application choice for an accountant's job did not differ significantly from subjects with an application choice for a project manager's job. Individuals with an application choice for the restaurant manager's job obtained a higher average score on the expressed control scale (5.69) than did the individuals with an application choice for either an accountant's job (4.30), or a project manager's job (4.80).

Although the ANOVA performed to investigate the relationship between measured interest and the INTRPNDS score produced non-significant results, it was also felt that a more detailed analysis of the individual FIRO-B scales will reveal significant relationships. Table 14
presents the means and standard deviations for each of the six FIRO scales by Realistic, Enterprising and Conventional vocational interest categories. Table 15 shows the results of the four MANOVA tests, the results of three of these tests were significant at the 0.05 level. Univariate F tests were performed on the individual dependent variables. The F test of the variable expressed control was significant $F (5, 236) = 3.03 (p < 0.01)$. Results from the Student-Newman-Keuls procedure indicated that subjects with a measured interest in the Realistic area differed significantly from subjects with a measured interest in the Enterprising and Conventional areas, $p < .05$. An examination of Table 14 shows that subjects with a measured interest in the Realistic area obtained the lowest mean score on the expressed control scale. The Scheffe procedure indicated that subjects with a measured interest in the Realistic area differed significantly from subjects with a measured interest in the Enterprising area $p < .05$. No other significant difference was found between the two groups.
CHAPTER IV

DISCUSSION

The Interpersonal Factors

The factor analysis designed to delineate Roe's (1966, 1984) concept of a Toward-Person and an Away-from-Person orientation yielded factors which have been called Interpersonal Warmth and Dispassionate Friendliness. Four scales from the FIRO-B representing expressed and wanted Inclusion and expressed and wanted Affection load heavily on the Interpersonal Warmth factor. These scales measure the individual's need to establish and maintain amiable relationships with several people and also the need to establish and maintain a more intimate relationship with a significant other. The scale from the GZTS representing Sociability also loaded onto this factor, and it measures the quality for gregariousness. This factor may well be described as conveying an orientation towards persons.

However, the other factor, Dispassionate Friendliness, does not outrightly convey an orientation away from persons. The scales which load heavily on this factor are the GZTS scales Friendliness, Personal Relations and Objectivity. The Friendliness scale is a measure of amiability, the
Personal Relations scale measures the tendency to accept others and the Objectivity scale measures the capacity to interact with others from an unprejudiced position.

The Interpersonal Warmth factor has seemingly evolved from a need to associate with others in a close relationship. Whereas the factor Dispassionate Friendliness signifies a more formal, aloof, polite interaction. It seems that this factor may represent those individuals who may not really enjoy close interpersonal relationships but because of a prescribed work environment, may be forced to adopt polite but distant social interactions.

The reason why this hypothesis was not more substantially supported is probably related to the fact that several diverse scale scores were used for the analysis. It is more often the case that individual item scores from a particular instrument are used in a factor analysis. The FIRO-B is generally designed to tap into an individual's need for congenial experiencing with others. It was therefore not surprising that most of the FIRO-B scales congregated on the Interpersonal Warmth factor. However, none of the scales included in the analysis signified in an outright manner, a tendency to withdraw from people. Instead some of the scales included may be interpreted as a likelihood of retiring from others only if subjects obtained low scores on the particular scale. Another explanation for the partial support of the hypothesis was that contrary to
expectation, the two factors extracted accounted for less than 40 percent of the variance.

The results of this study refine those of Jones' (1965) study. Jones measured the occupational interest of students. Each student's occupational interest was depicted by scores in each of eight occupational categories, these categories reflect Roe's (1956, 1984) scheme for classifying occupations. A factor analysis of the eight occupational interest categories produced a factor which Jones described as person-oriented (positive loadings) versus non-person oriented (negative loadings) occupations. An inter-battery correlation was performed between the eight occupational interest categories and the scales of the GZTS. The purpose of this procedure was to investigate the relationship between occupational preference and social orientation. The Masculinity-Femininity (M-F) scale of the GZTS produced the largest, significant correlation coefficients when coupled with four of the eight vocational interest categories. The M-F scale correlated positively with two categories previously defined as depicting non-person oriented jobs. The M-F scale correlated positively with another category depicting person-oriented jobs. Jones explained that the M-F scale has several items which relate to occupational preference. However as Jones' results clearly confirm, the M-F scale does not reflect social orientation.

Jones (1965) identified three other scales from the
GZTS as conveying information on social orientation, these are Restraint, Ascendance and Sociability (Jones termed this scale the Social scale in his 1965 study). He came to this conclusion by surveying individual scale items. The results of the study indicate that the Restraint scale was significantly, negatively correlated with an interest category previously determined to represent an orientation towards persons. The Ascendance scale was not correlated with any of the interest categories and the Sociability scale was significantly, positively correlated with a person-oriented category. The present study utilized the Sociability, Objectivity, Friendliness and Personal Relations scales of the GZTS. These scales were judged to be appropriate for measuring interpersonal associations based on the test constructor's description of the scales. The Sociability scale was the only GZTS scale which loaded heavily on the Interpersonal Warmth factor. This finding supports Jones' (1965) choice of the Sociability scale as representing social orientation and it also supports his finding of a positive relationship between the Sociability scale and a person-oriented interest category.

The three other GZTS scales used in the present study loaded exclusively on the Dispassionate Friendliness factor. These three scales exclusively characterized the factor. Interestingly, in Jones' study, the Friendliness and Personal Relations scales were significantly, negatively
correlated with person-oriented categories. The Objectivity scale was not significantly correlated with any interest category, however the correlations obtained were consistent with the other scales in implying a negative relationship with person-oriented occupations. It, therefore, seems that the factor called Dispassionate Friendliness in the present study shares some communality with Jones' non-person oriented factor. However given the description of the scales that comprise the Dispassionate Friendliness factor, it seems unreasonable to conclude that this factor is equivocal to a non-person oriented factor. In actuality the factor Dispassionate Friendliness can be more aptly described as a variant of the Interpersonal Warmth factor rather than its antithesis.

Clearly an Interpersonal Warmth factor or Towards Person orientation was most readily extracted in this study and in Jones' (1965) study. It seems likely that the majority of individuals responding to a questionnaire may attempt to create a favorable impression and in so doing endorse items which they perceive as enhancing their personality. It is a well known fact that our society condones a pro-social outlook, hence many test takers may consider this an asset worthy to be had. The desire to create a favorable impression is indeed characteristic of job applicants and the subjects in the present study meet this criterion. To some extent the outcome of this factor
analysis may have been influenced by the subjects' inherent need to present themselves in a favorable light. Roe (1984) has suggested that an individual's identified orientation either toward or away from persons helps to influence their vocational choice. It is noteworthy that none of the scales measuring vocational interest loaded on either of the two factors. The absence of vocational interest scales in either factor suggests that the vocational interest scales measure very different constructs than that measured by the scales of the GZTS or the FIRO-B. Holland (1978, 1985) describes each of the six vocational interest types in terms of personality characteristics. The present findings fail to support the notion that vocational interest as measured by the VPI may also be characterized in terms descriptive of the personality.

The factor analysis designed to delineate the three interpersonal need areas of Inclusion, Control and Affection yielded factors which have been called Dispassionate Friendliness, Independent Work Interests and People Orientation. The factor Dispassionate Friendliness is the same as the factor of the same name obtained in the first factor analysis. The factor Independent Work Interests is comprised of the VPI scales Artistic and Investigative vocational interests. The third factor People Orientation is comprised of the scales from the VPI measuring Social and Enterprising vocational interests and the Sociability scale
of the GZTS. These three scales are similar in their focus on social interaction. This factor comes closest to representing Schutz's (1966) interpersonal construct of Inclusion. The Independent Work Interests factor may be linked to the interpersonal construct of Control in that Artistic and Investigative occupations tend to be fairly autonomous. Individuals working in these areas receive a minimum amount of supervision from others and consequently tend to exert a great deal of control over the type and quality of work they produce. Quite clearly the relationship between Independent Work Interests and the construct of Control is a very tenuous one and also does not carry the full meaning of Schutz's use of the interpersonal construct. Contrary to the hypothesis, none of the obtained factors resemble Schutz's (1966) interpersonal construct of Affection.

Schutz (1966, p. 196) had proposed that a factor analysis of a "representative battery of measures of interpersonal behavior" would yield factors representing the three interpersonal need areas. Perhaps it may be argued that the scales used in this analysis do not sufficiently represent measures of interpersonal behavior as specified by Schutz. Given the easy convenience of this argument, Schutz's claim may never be definitively confirmed or negated. Suffice it to say that the measures included in the analysis were chosen because they described some aspect
of interpersonal behavior. No other researchers have attempted to confirm or disconfirm Schutz's proposal. It, therefore, seems important to emphasize that efforts should be made to further investigate this issue using more specific measures of interpersonal behavior.

**Relationship between Application Choice and Vocational Interest**

Present results indicate a significantly positive relationship between vocational interest and individuals with an application choice for an Enterprising type of job. However, there was not a significant relationship between vocational interest and application choice for either a Realistic or a Conventional type of job. The findings suggest that individuals who apply for Enterprising type jobs mostly demonstrate vocational interest in the Enterprising area while those who apply for jobs in the Realistic or Conventional areas tend not to demonstrate predominantly Realistic or Conventional vocational interests. It seems that Holland's Enterprising interest area is more clearly delineated than the other two areas and consequently allows for greater reliability in prediction. In much of the research on person-environment congruence with respect to Holland's theory of vocational behavior, congruence is determined by utilizing an agreement index to compare the code representing measured vocational interest with the code representing the work environment. A first
letter agreement index was utilized in the present study. Most of the researchers investigating congruence have been concerned with a blanket sample of congruent subjects, regardless of their particular vocational interests. Specifically researchers have not taken into consideration whether any of the vocational interest areas was more highly represented among congruent versus non-congruent subjects. The present study looked at congruence within each of the three measured vocational interest categories.

Other researchers who focused on congruence in one vocational interest category were O'Neil and Magoon (1977), O'Neil, Magoon and Tracey (1978) and Wiley and Magoon (1982). They followed subjects who had indicated an Investigative vocational interest to see if over a period of four to seven years they tended to work in Investigative settings. The researchers found that measured vocational interest in the Investigative category demonstrated moderately high efficiency in predicting later career choices (O'Neil et al., 1978). These findings suggest that the Investigative vocational interest category may also be clearly delineated and is therefore valuable for predictive purposes.

An explanation for the failure to achieve the hypothesized results with regards to the Conventional and Realistic categories is that these interest areas may be less popular than perhaps the Enterprising interest area.
This is partly evident by the vast difference in the number of applicants for an Enterprising job and those for a Realistic or Conventional job.

This calls into focus Pryor's (1981; Pryor & Taylor, 1986) argument concerning vocational behavior. He indicated that an individual's vocational interest as determined by appropriate testing, is a more useful way of judging occupational interest, than noting the individual's job. In the present study the subjects' measured interest may or may not be a more accurate indicator of actual occupational interest than the subject's application choice. More research is needed to address this question more specifically.

In order to understand the results obtained for subjects in the Conventional category, one may consider the question of whether female applicants, more specifically female applicants for jobs in the Conventional area, would exhibit different levels of congruence than male applicants. Many of the jobs which Holland (1985) has listed in the Conventional category have traditionally been filled by women. Many of the tasks performed by Conventional types have also been considered stereotypically feminine, eg. typing and filing. It may be that the items on the Conventional scale are written in a manner which male respondents experience difficulty endorsing.

Another possible explanation is that Holland's
Realistic and Conventional scales do not accurately reflect the interests of individuals in Realistic or Conventional jobs. Or it may be that the jobs of accountant and project manager are mis-classified in their respective vocational interest categories. Subjects in this study have applied for positions as management accountants. In such a position they would handle the financial records of a firm and they would provide executives with financial information used in making business decisions. This accountant's position may be better subsumed under another vocational interest category. The job of a project manager is one that requires expert knowledge of work in a construction site. The project manager must be able to read blueprints and plans, supervise other workers and at times must function as a mediator in labor disputes. Like the accountant's position, this position may also be better subsumed under another vocational interest category.

Vocational Interest and Interpersonal Needs

The present study does not support the notion that individuals with an application choice for an Enterprising job will indicate a greater need to associate with other people. As outlined by Schutz (1966), interpersonal behavior encompasses a need for Inclusion, a need for Control and a need for Affection. It is believed that the hypothesis was not supported because the overall interpersonal needs score (INTRPND) used in the analysis
was too global a score for this study. Consequently further analyses were conducted, Schutz's six individual scales were substituted for the INTRPDNS score. Applicants for an Enterprising type of job demonstrated a greater need to exert control over others than did applicants for a Realistic or a Conventional job.

This finding is consistent with Holland's (1985) portrayal of individuals with Enterprising interests. These are the leaders in the business world. The individuals who are given the responsibility for managing the affairs of others, for instructing and directing other people. Of necessity the role is autonomous and connotes much power.

The present results serve to clarify Bohn's (1966) findings. In his study, individuals who were classified as either having Enterprising or Conventional interests obtained high scores on a Dominance scale derived from the Adjective Check List. Individuals with a Realistic interest obtained low scores on this scale. Holland (1962) had also found that Conventional and Enterprising interest types obtain higher scores when measured for dominance.

Both Holland's and Bohn's studies looked at measured interest, in the present study the findings are based on application choice. It seems that the factor of application choice was useful in making a clearer distinction between Enterprising and Conventional vocational interests.

The results do not support the conception that
individuals with a measured interest for Enterprising occupations indicate a greater need for interacting with others. Again it is believed that no support was found for this hypothesis because the INTRPNDS score was too global for the purpose of this study. Further analyses were conducted substituting Schutz's six individual scales for the INTRPNDS score. Individuals with a measured interest for Realistic occupations indicated a significantly lower need to control others than did individuals with a measured interest for either Enterprising or Conventional occupations.

The results directly support those of Bohn (1966) and Holland (1962). The results also support the previously suggested notion that there is a subtle difference between application choice and measured interest.

The question of why there were no other significant differences in the other areas of interpersonal need, is one worthy to be considered. One likely possibility is that the need to control others, more specifically to exert power, authority over others is an aspect of interpersonal association where the differences between people are more clearly defined. It seems that the areas of Inclusion and Affection as outlined by Schutz (1966) are not influenced by or related to vocational interest. Regardless of their vocational interest, subjects obtained similar scores in the areas of Inclusion and Affection on the FIRO-B.
Congruent vocational choice and Interpersonal Needs

There was no significant difference between subjects who obtained mid-range INTRPNDS scores, and those who obtained extreme scores, when their responses were examined for congruence of vocational choice. Holland (1985) suggested that individuals who make congruent vocational choices tend to feel more satisfied in their work. Walsh (1974) found that congruent males had a greater sense of well being than non-congruent males, he (Walsh and Lewis, 1972) also found that congruent males made fewer reports of social isolation. In so far as the INTRPNDS score can be likened to a measure of well being and an indicator of social involvement, the present results do not corroborate the previously mentioned findings.

The reason why this hypothesis was not supported is perhaps due to the nature of the personality measure. It is possible that the FIRO-B may not be an adequate device for judging well being. In testing this hypothesis it was assumed that the concept of well being could be implied from the level of expressed and desired interactions with others. This assumption may have been inappropriately made. Although the FIRO-B is a measure of interpersonal relations, it does not actually measure degree of social involvement. Conceivably, one may express the need for a high degree of social involvement, when in actuality one may lack social contacts and may continue to experience social isolation.
In order to further explore this issue, it is recommended that research be conducted to investigate the relationship between performance on the FIRO-B and the degree of social involvement.

**Conclusion**

It is worthy of emphasis that the subjects in the present study were actual job applicants, thus implying a valid use of the results in making appropriate applications to the work world. The present findings which indicate that individuals who apply for an Enterprising job demonstrate predominantly Enterprising interests while individuals who apply for Realistic or Conventional jobs tend not to demonstrate predominantly Realistic or Conventional interests, is of some importance to the work world. In the field of assessment and consulting for determining appropriateness for job placement, measured vocational interest is a category used by assessors in making their recommendations for job placement. For individuals who are applying for Conventional or Realistic jobs, the implications are that recommendations heavily weighted by measured vocational interest, may be of questionable value. For Conventional and Realistic occupations, measured vocational interest may not be a useful factor for making employment decisions.

It is of some practical relevance that Enterprising individuals express a relatively high need for exerting
control over others. It seems that this quality would be a necessary requirement in many managerial positions. Therefore in determining the appropriateness for a job applicant to a managerial position, it would be beneficial to pay special attention to the eC scale of the FIRO-B.

Failure to find support for Schutz's claim that a factor analysis of appropriate measures of interpersonal behavior will yield factors representing Inclusion, Control and Affection, suggests that further research is needed to explore this matter. The present study may not have utilized measures which adequately assessed interpersonal behavior.

The results of the present study also indicate that further research is needed in order to understand more fully the role of congruence between application choice and measured interest, within each of the six vocational interest categories. The concept of congruence is important in justifying the use of vocational interest tests to predict future employment. It is also suggested that differences in congruence between males and females in each of the six interest categories, be explored.

Finally, in order to understand more fully the implications of Schutz's measure of interpersonal relations, it is suggested that research be conducted to examine the relationship between expressed and actual interpersonal involvement.
APPENDIX

Tables
Table 1

Summary of Factor Analysis for Interpersonal Warmth and Dispassionate Friendliness Factors

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor loadings</th>
<th>Factor loadings</th>
<th>Communality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Interpersonal Warmth</td>
<td>Dispassionate Friendliness</td>
<td></td>
</tr>
<tr>
<td>FIRO-B wi</td>
<td>.80399</td>
<td></td>
<td>.64656</td>
</tr>
<tr>
<td>FIRO-B wa</td>
<td>.77081</td>
<td></td>
<td>.61168</td>
</tr>
<tr>
<td>FIRO-B eA</td>
<td>.74146</td>
<td></td>
<td>.55114</td>
</tr>
<tr>
<td>FIRO-B eI</td>
<td>.73586</td>
<td></td>
<td>.54224</td>
</tr>
<tr>
<td>GZTS Soci.</td>
<td>.48017</td>
<td></td>
<td>.31676</td>
</tr>
<tr>
<td>GZTS Person. Relations</td>
<td></td>
<td>.80382</td>
<td>.64707</td>
</tr>
<tr>
<td>GZTS Object</td>
<td></td>
<td>.79349</td>
<td>.62963</td>
</tr>
<tr>
<td>GZTS Friend.</td>
<td></td>
<td>.72084</td>
<td>.51972</td>
</tr>
</tbody>
</table>
### Table 2

**Eigenvalues and Percentage of Variance accounted for by the Interpersonal Warmth and Dispassionate Friendliness Factors**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Eigenvalue</th>
<th>Percent of Intervariable Variance</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interper. Warmth</td>
<td>2.74977</td>
<td>22.9</td>
<td>22.9</td>
</tr>
<tr>
<td>Dispass. Friendl.</td>
<td>1.84497</td>
<td>15.4</td>
<td>38.3</td>
</tr>
</tbody>
</table>
Table 3

Summary of Factor Analysis for Dispassionate Friendliness, Independent Work Interests and People Orientation Factors

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor loadings</th>
<th>Factor loadings</th>
<th>Factor loadings</th>
<th>Communalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>GZTS Obj.</td>
<td>.79814</td>
<td></td>
<td></td>
<td>.63953</td>
</tr>
<tr>
<td>GZTS Per.</td>
<td></td>
<td>.79777</td>
<td></td>
<td>.64166</td>
</tr>
<tr>
<td>Relations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GZTS Friendl.</td>
<td>.73648</td>
<td></td>
<td></td>
<td>.54470</td>
</tr>
<tr>
<td>VPI Inves.</td>
<td></td>
<td>.86897</td>
<td></td>
<td>.75722</td>
</tr>
<tr>
<td>VPI Art.</td>
<td></td>
<td>.86496</td>
<td></td>
<td>.75090</td>
</tr>
<tr>
<td>VPI Enter.</td>
<td></td>
<td></td>
<td>.68910</td>
<td>.48648</td>
</tr>
<tr>
<td>GZTS Soci.</td>
<td></td>
<td>.64782</td>
<td></td>
<td>.49449</td>
</tr>
<tr>
<td>VPI Soci.</td>
<td></td>
<td>.54071</td>
<td></td>
<td>.35297</td>
</tr>
</tbody>
</table>
Table 4

Eigenvalues and Percentage of Variance accounted for by the Dispassionate Friendliness, Independent Work Interests and Personal Orientation Factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>Eigenvalue</th>
<th>Percentage of Intervariable Variance</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispass. Friend.</td>
<td>2.04</td>
<td>20.4</td>
<td>20.4</td>
</tr>
<tr>
<td>Indepen. Work Int.</td>
<td>1.60</td>
<td>16.0</td>
<td>36.4</td>
</tr>
<tr>
<td>People Orient.</td>
<td>1.30</td>
<td>13.0</td>
<td>49.4</td>
</tr>
</tbody>
</table>
Table 5

Chi-Square Test of Association between Application Choice and Predicted versus Non-Predicted Vocational Interest

<table>
<thead>
<tr>
<th></th>
<th>Predicted Vocational Interest</th>
<th>Non-Predicted Vocational Interest</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restaurant Manager</td>
<td>95 (62.51)*</td>
<td>29 (61.49)</td>
<td>124</td>
</tr>
<tr>
<td>Accountant</td>
<td>9 (15.63)</td>
<td>22 (15.37)</td>
<td>31</td>
</tr>
<tr>
<td>Project Manager</td>
<td>18 (43.86)</td>
<td>69 (43.14)</td>
<td>87</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>122</strong></td>
<td><strong>120</strong></td>
<td><strong>242</strong></td>
</tr>
</tbody>
</table>

\[X^2 (2, N = 242) = 70.51, \ p < .001\]

* Expected frequencies in parentheses
### Table 6

Chi-Square Test of Association between Application Choice and Predicted versus Non-Predicted Measured Vocational Interest—Excluding Restaurant Managers

<table>
<thead>
<tr>
<th></th>
<th>Predicted Vocational Interest</th>
<th>Non-Predicted Vocational Interest</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accountants</td>
<td>9 (7.09)</td>
<td>22 (23.91)</td>
<td>31</td>
</tr>
<tr>
<td>Project Managers</td>
<td>18 (19.91)</td>
<td>69 (67.09)</td>
<td>87</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>91</td>
<td>118</td>
</tr>
</tbody>
</table>

\[ X^2 (2, N = 118) = 0.89, \quad p > .05 \]
Table 7

Means and Standard Deviations of INTRPNDS by Application Choice

<table>
<thead>
<tr>
<th>Position</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restaurant Manager</td>
<td>25.51</td>
<td>7.98</td>
<td>140</td>
</tr>
<tr>
<td>Accountant</td>
<td>26.56</td>
<td>9.12</td>
<td>43</td>
</tr>
<tr>
<td>Project Manager</td>
<td>25.4</td>
<td>8.40</td>
<td>105</td>
</tr>
<tr>
<td>Total</td>
<td>25.53</td>
<td>8.30</td>
<td>288</td>
</tr>
</tbody>
</table>
Table 8

ANOVA INTRPNDS by Application Choice

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Signif. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>61.26</td>
<td>2</td>
<td>30.63</td>
<td>0.44</td>
<td>0.64</td>
</tr>
<tr>
<td>Within Groups</td>
<td>19686.46</td>
<td>285</td>
<td>69.08</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 9

Means and Standard Deviations for INTRPNDS by Measured Vocational Interest

<table>
<thead>
<tr>
<th>Measured Interest</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Realistic</td>
<td>25.00</td>
<td>10.15</td>
<td>21</td>
</tr>
<tr>
<td>Enterprising</td>
<td>25.86</td>
<td>8.00</td>
<td>136</td>
</tr>
<tr>
<td>Conventional</td>
<td>26.10</td>
<td>7.61</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>25.74</td>
<td>8.20</td>
<td>176</td>
</tr>
</tbody>
</table>
Table 10

ANOVA Measured Vocational Interest by INTRPNDS

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Signif. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Cells</td>
<td>64.78</td>
<td>2</td>
<td>32.39</td>
<td>.478</td>
<td>.62</td>
</tr>
<tr>
<td>Within Cells</td>
<td>11639.12</td>
<td>172</td>
<td>67.67</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 11

Chi-Square test of Association between Congruence and moderate INTRPNDs scores and Non-Congruence and extreme INTRPNDs scores

<table>
<thead>
<tr>
<th></th>
<th>Congruent</th>
<th>Non-Congruent</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme</td>
<td>34 (35.07)</td>
<td>35 (33.93)</td>
<td>69</td>
</tr>
<tr>
<td>Moderate</td>
<td>89 (87.93)</td>
<td>84 (85.07)</td>
<td>173</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>123</strong></td>
<td><strong>119</strong></td>
<td><strong>242</strong></td>
</tr>
</tbody>
</table>

$X^2 (2, N=242) = .093, p > .05$
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean * S D</td>
<td>Mean * S D</td>
<td>Mean * S D</td>
<td>Mean * S D</td>
</tr>
<tr>
<td>eI</td>
<td>4.88 * 1.90</td>
<td>5.21 * 2.17</td>
<td>4.80 * 1.86</td>
<td>4.90 * 1.86</td>
</tr>
<tr>
<td>wI</td>
<td>3.84 * 3.18</td>
<td>4.58 * 3.65</td>
<td>3.95 * 3.28</td>
<td>3.99 * 3.29</td>
</tr>
<tr>
<td>eC</td>
<td>5.69 * 2.76</td>
<td>4.30 * 2.74</td>
<td>4.80 * 2.85</td>
<td>5.16 * 2.83</td>
</tr>
<tr>
<td>wC</td>
<td>2.16 * 1.71</td>
<td>2.84 * 1.77</td>
<td>2.25 * 1.64</td>
<td>2.29 * 1.71</td>
</tr>
<tr>
<td>eA</td>
<td>3.72 * 1.91</td>
<td>4.32 * 2.33</td>
<td>3.94 * 2.12</td>
<td>3.89 * 2.06</td>
</tr>
<tr>
<td>wA</td>
<td>5.21 * 1.89</td>
<td>5.30 * 2.10</td>
<td>5.40 * 1.87</td>
<td>5.30 * 1.91</td>
</tr>
<tr>
<td>N</td>
<td>140</td>
<td>43</td>
<td>105</td>
<td>288</td>
</tr>
</tbody>
</table>
Table 13

MANOVA Application Choice by eI, wI, eC, wC, eA, wA

**Multivariate test of Significance**

(S=2, M=11/2, N=139)

<table>
<thead>
<tr>
<th>Test name</th>
<th>Value</th>
<th>Approx. F</th>
<th>Hypoth. df</th>
<th>Error df</th>
<th>Signif</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilks</td>
<td>0.92</td>
<td>1.83</td>
<td>12</td>
<td>560</td>
<td>.04</td>
</tr>
<tr>
<td>Pillais</td>
<td>0.07</td>
<td>1.82</td>
<td>12</td>
<td>562</td>
<td>.04</td>
</tr>
<tr>
<td>Hotellings</td>
<td>0.08</td>
<td>1.84</td>
<td>12</td>
<td>568</td>
<td>.04</td>
</tr>
<tr>
<td>Roys</td>
<td>0.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Univariate F tests**

with (2, 285) df.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hypoth MS</th>
<th>Error MS</th>
<th>F</th>
<th>Signif</th>
</tr>
</thead>
<tbody>
<tr>
<td>eI</td>
<td>2.60</td>
<td>3.45</td>
<td>0.75</td>
<td>.473</td>
</tr>
<tr>
<td>wI</td>
<td>9.26</td>
<td>10.84</td>
<td>0.85</td>
<td>.427</td>
</tr>
<tr>
<td>eC</td>
<td>42.50</td>
<td>7.80</td>
<td>5.45</td>
<td>.005</td>
</tr>
<tr>
<td>wC</td>
<td>7.67</td>
<td>2.88</td>
<td>2.70</td>
<td>.069</td>
</tr>
<tr>
<td>eA</td>
<td>6.21</td>
<td>4.22</td>
<td>1.47</td>
<td>.231</td>
</tr>
<tr>
<td>wA</td>
<td>1.04</td>
<td>3.67</td>
<td>0.28</td>
<td>.754</td>
</tr>
</tbody>
</table>
### Table 14

Cell Means and Standard Deviations for the FIRO-B scales by Realistic, Enterprising and Conventional Measured Vocational Interest categories

<table>
<thead>
<tr>
<th>Scales</th>
<th>REALISTIC</th>
<th>ENTERPRISING</th>
<th>CONVENTIONAL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean * S.D.</td>
<td>Mean * S.D.</td>
<td>Mean * S.D.</td>
<td>Mean * S.D.</td>
</tr>
<tr>
<td>eI</td>
<td>5.00 * 1.58</td>
<td>5.04 * 1.83</td>
<td>4.84 * 2.03</td>
<td>5.02 * 1.82</td>
</tr>
<tr>
<td>wI</td>
<td>3.52 * 3.68</td>
<td>4.28 * 3.12</td>
<td>3.63 * 3.53</td>
<td>4.12 * 3.23</td>
</tr>
<tr>
<td>eC</td>
<td>3.62 * 2.42</td>
<td>5.63 * 2.76</td>
<td>5.53 * 2.59</td>
<td>5.39 * 2.77</td>
</tr>
<tr>
<td>wC</td>
<td>2.05 * 1.83</td>
<td>2.16 * 1.71</td>
<td>2.47 * 1.39</td>
<td>2.18 * 1.69</td>
</tr>
<tr>
<td>eA</td>
<td>4.52 * 2.46</td>
<td>3.59 * 1.94</td>
<td>4.32 * 2.08</td>
<td>3.78 * 2.04</td>
</tr>
<tr>
<td>wA</td>
<td>5.38 * 2.18</td>
<td>5.15 * 1.86</td>
<td>5.31 * 2.31</td>
<td>5.19 * 1.94</td>
</tr>
<tr>
<td>N</td>
<td>21</td>
<td>136</td>
<td>19</td>
<td>176</td>
</tr>
</tbody>
</table>
Table 15

MANOVA Measured Vocational Interest by FIRO-B scales

Multivariate Tests of Significance
(S = 5, M = 0, N = 114 1/2)

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Value</th>
<th>Approx. F</th>
<th>Hypoth. Df</th>
<th>Error Df</th>
<th>Signif.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillais</td>
<td>.17825</td>
<td>1.45</td>
<td>30</td>
<td>1175</td>
<td>.057</td>
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<tr>
<td>Hotellings</td>
<td>.19393</td>
<td>1.48</td>
<td>30</td>
<td>1147</td>
<td>.05</td>
</tr>
<tr>
<td>Wilks</td>
<td>.83044</td>
<td>1.47</td>
<td>30</td>
<td>926</td>
<td>.05</td>
</tr>
<tr>
<td>Roys</td>
<td>.11192</td>
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<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Univariate F tests
with (5, 236) Df

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hypoth MS</th>
<th>Error MS</th>
<th>F</th>
<th>Signif.</th>
</tr>
</thead>
<tbody>
<tr>
<td>eI</td>
<td>4.25</td>
<td>3.36</td>
<td>1.26</td>
<td>.28</td>
</tr>
<tr>
<td>wI</td>
<td>11.31</td>
<td>10.60</td>
<td>1.07</td>
<td>.38</td>
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<tr>
<td>eC</td>
<td>23.06</td>
<td>7.62</td>
<td>3.03</td>
<td>.01</td>
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<tr>
<td>wC</td>
<td>1.78</td>
<td>2.78</td>
<td>.64</td>
<td>.67</td>
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<tr>
<td>eA</td>
<td>8.02</td>
<td>4.04</td>
<td>1.98</td>
<td>.08</td>
</tr>
<tr>
<td>wA</td>
<td>3.99</td>
<td>3.53</td>
<td>1.13</td>
<td>.35</td>
</tr>
</tbody>
</table>
REFERENCES


study of the reactions of high school students to simulated jobs. (Research Report No. 161). Baltimore, MD: Johns Hopkins University, Center for Social Organization of Schools. (ERIC Document Reproduction Service No. ED 087 882)


