Personality disorder dimensions and Holland's theory of vocational personality

Daniel W. Knight

Follow this and additional works at: https://trace.tennessee.edu/utk_gradthes

Recommended Citation
https://trace.tennessee.edu/utk_gradthes/11159

This Thesis is brought to you for free and open access by the Graduate School at TRACE: Tennessee Research and Creative Exchange. It has been accepted for inclusion in Masters Theses by an authorized administrator of TRACE: Tennessee Research and Creative Exchange. For more information, please contact trace@utk.edu.
To the Graduate Council:

I am submitting herewith a thesis written by Daniel W. Knight entitled "Personality disorder dimensions and Holland's theory of vocational personality." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Industrial and Organizational Psychology.

Warren H. Jones, Major Professor

We have read this thesis and recommend its acceptance:

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)
To the Graduate Council:

I am submitting herewith a thesis written by Daniel W. Knight, Jr. entitled "Personality Disorder Dimensions and Holland's Theory of Vocational Personality". I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Industrial and Organizational Psychology.

Warren H. Jones, Major Professor

We have read this thesis and recommend its acceptance:

[Signatures]

Accepted for the Council:

[Signature]

Assistant Vice Chancellor
and Dean of The Graduate School
PERSONALITY DISORDER DIMENSIONS AND
HOLLAND'S THEORY OF VOCATIONAL PERSONALITY

A Thesis
Presented for the
Master of Science
Degree
The University of Tennessee, Knoxville

Daniel W. Knight, Jr.
August, 1995
ABSTRACT

This study investigated the relationship between Axis II personality disorders and Holland's theory of vocational personality and vocational choice using two self-report measures; the Self-Directed Search, a measure of Holland's vocational types and Profile, a measure of the Axis II personality disorders. The sample for this study consisted of 292 undergraduates from a large southern university. 56% were female. Ages ranged from 17 to 47 with a mean of 20. Results indicated a number of significant statistical relationships between Holland's vocational type scales and the Axis II scales. In keeping with previous findings, most of these relationships were negative. However, each vocational type scale was also positively associated with at least one unique Axis II scale. For example, there were positive relationships between the Antisocial and Realistic scales, the Schizoid and Investigative scales, the Schizotypal and Artistic scales, the Histrionic and Social scales, the Narcissistic and Enterprising scales, and the Compulsive and Conventional scales. In addition, the pattern of relationships differed for men and women. For men, the correlations were stronger and there was more variance accounted for in the type scales by the disorder scales. Finally, the strongest and largest number of relationships were found between the Enterprising scale and the Axis II scales. These data suggest a link between Axis II personality disorders and Holland's vocational types. These results are discussed in relation to previous research.
# TABLE OF CONTENTS

| CHAPTER I-INTRODUCTION |  
|------------------------|---
| Vocational Types       | 1  
| Research on Holland's Types | 1  
| The Axis II Personality Disorders | 4  
| Research on the Axis II Disorders | 6  

| CHAPTER II-A REVIEW OF THE LITERATURE |  
|---------------------------------------|---
| Type Characteristics: Overview of Studies | 12  
| Type Characteristics: Specific Relationships | 12  
| Summary                                 | 16  
| The Axis II Personality Disorders       | 27  
| Summary                                 | 28  

| CHAPTER III-METHOD |  
|--------------------|---
| Participants       | 35  
| Procedure          | 35  
| Instruments        | 35  

| CHAPTER IV-RESULTS |  
|--------------------|---
| Specific Relationships | 40  
| Overall Patterns     | 40  
| Gender Analyses      | 43  

| CHAPTER V-DISCUSSION |  
|----------------------|---
| Vocational Type      | 50  
| General Explanation  | 59  
| Implications         | 61  
| Limitations          | 63  
| Suggestions for Future Research | 63  

# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table Number</th>
<th>Table Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Holland Types Correlated With Axis II Dimensions</td>
<td>41</td>
</tr>
<tr>
<td>2</td>
<td>Regression Summary Table</td>
<td>42</td>
</tr>
<tr>
<td>3</td>
<td>Holland Types Correlated With Axis II Dimensions for Males</td>
<td>46</td>
</tr>
<tr>
<td>4</td>
<td>Regression Summary Table for Males</td>
<td>47</td>
</tr>
<tr>
<td>5</td>
<td>Holland Types Correlated With Axis II Dimensions for Females</td>
<td>48</td>
</tr>
<tr>
<td>6</td>
<td>Regression Summary Table for Females</td>
<td>49</td>
</tr>
</tbody>
</table>
CHAPTER I
INTRODUCTION

Holland (1973, 1985a) has presented a theory postulating that vocational interests and vocational choice are an expression of personality which can be summarized into six vocational personality types: Realistic, Investigative, Artistic, Enterprising, Social, and Conventional. Research has compared the types to a number of normal personality inventories. Results usually support the formulation of the types (Holland, 1985a). In contrast, little research has been conducted investigating the relationships between vocational personality and abnormal or maladaptive personality characteristics. Thus, the present study expands on previous research by investigating the relationships between Holland's (1985a) theory of vocational personality and the personality disorders defined as Axis II by the 1987 revision of the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R; American Psychiatric Association, 1987).

Vocational Types

Within Holland's (1985a) formulation the vocational types are conceived as a hexagon. Vocational types which are adjacent in the hexagon are expected to be more similar than opposite types in terms of interests, values, traits, and competencies. Vocational types are usually operationalized through a personality profile (Holland, 1985a). Brief summaries of the personality types are presented below.

Holland (1959) originally conceived the Realistic types as the "Motoric Orientation" due to their preference for acting out rather than thinking through situations. Holland described these individuals as hardy, practical, and physically capable individuals who above all prefer to play
masculine roles. They typically express an interest in activities involving outdoor activities and the manipulation of objects and tools. Realistic types often express a distaste for activities which involve social communication. These preferences lead to the acquisition of technical, mechanical, and athletic skills and a deficit in human relations skills. Realistic types find an outlet for these skills in occupations such as engineering, agriculture, athletics, and the skilled trades (Holland, 1985a).

Holland (1959) originally formulated the Investigative types as the "Intellectual Orientation" because they prefer to think through rather than act out situations. Holland has described these individuals as analytical, critical, curious and introspective individuals who have marked needs to organize and understand the world. These individuals are often interested in activities involving abstract problem solving, ambiguous challenges, and the creative investigation of scientific phenomena. However, Investigative types frequently avoid situations which are highly political, structured, or social. These interests often lead to the acquisition of scientific and mathematical abilities and to a deficit in persuasive and leadership skills. Investigative types use their skills in occupations such as biology, experimental psychology, computer programming, and dentistry (Holland, 1985a).

Holland (1959) initially conceived of the Artistic types as the "Esthetic Orientation" because they prefer dealing with situations through self-expression in artistic media. Holland has characterized the Artistic types as imaginative, original, expressive, and emotional. Their main interests appear to be activities which involve the manipulation of verbal, human, or physical material to create artistic forms of expression. In contrast, Artistic types frequently dislike activities which are highly
structured and involve conformity. Their preferences lead to the acquisition of a wide range of artistic skills such as writing, painting, dramatic, and musical abilities and to a deficit in clerical and business-related skills. Artistic types often express their interests and abilities in occupations such as musicians, authors, architects, photographers, chefs, actors, and interior decorators (Holland, 1985a).

Holland (1959) initially conceptualized the Social types as the "Supportive Orientation" because of their preference for dealing with situations affectively and interpersonally, through cooperation and mutual support. Holland has described these individuals as sociable, cooperative, humanistic, and tactful people who are willing to accept feminine impulses and roles. Their typical interests involve working with people through training, developing, helping, or enlightening. Social types often dislike activities which involve machinery, tools, and heavy equipment. These preferences typically lead to the development of skills in understanding others and teaching and to a deficit in technical and mechanical skills. Given these skills, Social types often choose occupations such as education, clinical and counseling psychology, social work, nursing, and the ministry (Holland, 1985a).

The Enterprising types were originally conceived by Holland (1959) as the "Persuasive Orientation" because of their preference for dealing with situations by using their verbal skills for dominating, selling, or leading others. Holland has characterized these individuals as ambitious, self-confident, adventurous, energetic, and dominant people who see themselves as strong masculine leaders. They are typically enthusiastic about activities which involve the manipulation of material or others for personal or organizational achievement and economic gain. Conversely, Enterprising
types are often uninterested in intellectual investigation for its own sake and show a lack of interest in activities which do not result in tangible rewards. These interests lead to the accumulation of political, persuasive, and leadership skills and to a lack of development in scientific and mathematical ability. Enterprising types frequently put these skills to use as managers, executives, buyers, salespeople, and entrepreneurs (Holland, 1985a).

Holland's (1959) original conceptualization of the Conventional types was as the "Conforming Orientation" because of their preference for dealing with situations by looking toward the accepted cultural attitudes and exercising excessive self-control. Holland has described these individuals as efficient, orderly, conventional, and conscientious people who prefer subordinate roles. They usually prefer activities that involve the precise, well organized manipulation of data within a framework of established rules and procedures. However, Conventional types usually do not care for situations which are ambiguous, unstructured and exploratory in nature preferring to know precisely what is expected of them. Their preferences lead to the acquisition of clerical, computational, and business system skills and to a lack of skills in the more artistic forms of expression. Conventional types often prefer occupations in accounting, banking, secretarial work, and the military (Holland, 1985a).

Research on Holland's Types

Since Holland (1959) formulated his original theoretical formulation a number of researchers have investigated the personality characteristics of the vocational types. Holland (1977) has presented one of the most comprehensive sources of these relationships containing correlations between the VPI and the Guilford-Zimmerman Temperament Survey
(GZTS), the California Psychological Inventory (CPI), the 16 Personality Factor Questionnaire (16PF), and the Edwards Personal Preference Schedule (EPPS). Results have generally been consistent with Holland's definitions. For example, on the CPI Social type scores were associated with sociability and responsibility scores whereas Enterprising type scores were associated with greater dominance and social presence. In addition on the 16PF, Realistic and Investigative type scores were associated with higher tough-mindedness scores, whereas Artistic and Social type scores were associated with higher tender-mindedness scores.

Research has also been accumulating on comparisons between the vocational types and the Big Five factor model of personality. Costa, McCrae, and Holland (1984) investigated the relationships among the variables of the Self-Directed Search and the Neuroticism-Extraversion-Openness Inventory which contained measures of three of the five factors, neuroticism, extraversion, and openness to experience. Results indicated that Investigative and Artistic scores were strongly related to openness to experience scores whereas Social and Enterprising type scores were strongly related to extraversion scores. Neuroticism was only weakly and inconsistently related to the six vocational personality dimensions.

More recently, researchers have made comparisons between the types and the full five factor model which, in addition to the previously mentioned factors, contains measures of agreeableness and conscientiousness (Holland, Johnston, & Asama, 1994; Tokar & Swanson, 1994). These studies showed that Social scores were associated with greater agreeableness scores and that Conventional scores were associated with greater conscientiousness scores as would be expected by Holland's original formulation.
Relative to the extensive literature comparing Holland's vocational type scores to normal personality inventories, there have been far fewer studies examining pathology or abnormal personality characteristics in comparison to vocational type scores. One exception has been work by Holland, Johnston, & Asama (1994) that compared a measure of the types to the Personal Styles Inventory (Silver & Malone, 1993) which is an inventory designed to measure six character styles from the DSM-III-R: depressive, paranoid, narcissistic, impulsive, hysterical, and obsessive-compulsive. Among the results of this study was the finding that Artistic scores were positively associated with hysteria scores and that Conventional scores were positively associated with obsessive-compulsive scores. In addition, Enterprising scores were negatively correlated with depression scores.

The goal of the present study is to expand on previous research comparing measures of abnormal personality characteristics with Holland's (1985a) vocational types. For the purposes of the present study a number of relationships will be explored between a measure of Holland's vocational types and a measure of a system of personality pathology presented within Axis II of the revision of the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R; American Psychiatric Association, 1987).

The Axis II Personality Disorders

With the publication of the DSM-III in 1980 and its revision in 1987 the study of personality pathology was greatly advanced (APA; American Psychiatric Association, 1987). The DSM-III-R is a diagnostic system which makes use of five different categories known as axes for communicating different levels of information. Axis II personality
disorders are characteristic of individuals who present maladaptive personality traits. Personality traits can be considered maladaptive when they lead to deficits in social and occupational functioning or subjective distress (APA, 1987). Millon (1981) went further in stating that personalities can be considered disordered under three conditions; (1) when they are inflexible or presented rigidly in every situation, (2) when they foster vicious circle patterns which exacerbate rather than resolve difficulties, and (3) when personalities are extremely vulnerable and break down under stress.

Currently, Axis II of the DSM-III-R defines eleven personality disorders which are intended to provide a representative system of personality pathology. Axis II is separated into three clusters. Cluster A disorders are composed of odd or eccentric characteristics. This cluster includes the Paranoid, Schizoid, and Schizotypal personality disorders. The Paranoid personality disorder is characterized by a tendency to be suspicious of others and to interpret the actions of others as threatening. The Schizoid personality disorder is characterized by an indifference to social relationships and a lack of strong emotional experience. Finally, the Schizotypal personality disorder is characterized by a deficit in interpersonal functioning as well as peculiarities in ideas, outward appearance, and behavior (APA, 1987).

Cluster B personality disorders are represented by dramatic, emotional, or erratic behavior. This cluster includes the Antisocial, Borderline, Histrionic, and Narcissistic personality disorders. The core of the Antisocial personality disorder is a pattern of irresponsible, impulsive and aggressive behavior which shows no regard for cultural mores. The Borderline personality disorder is characterized by significant instability in
interpersonal relationships, self-image, and mood. The Histrionic personality disorder is associated with a pattern of exaggerated emotionality and attention seeking. Finally, the Narcissistic personality disorder is characterized by a grandiose sense of self-importance, a lack of empathy, and exploitive behavior (APA, 1987).

Cluster C personality disorders are associated with anxious or fearful characteristics. This cluster contains the Avoidant, Dependent, Obsessive-Compulsive, and Passive-Aggressive personality disorders. Individuals with these disorders are considered anxious or fearful (APA, 1987). The Avoidant personality disorder is characterized by excessive social discomfort, fear of embarrassment, and timidity. The core of the Dependent personality disorder is a pattern of submissive behavior, lack of initiative, and excessive dependence on others. The Obsessive-Compulsive personality disorder is characterized by perfectionism, inflexibility, and an extended preoccupation with details, rules, and order. Finally, the Passive Aggressive personality disorder is associated with a pattern of procrastination and forgetfulness when faced with demands for adequate social and occupational functioning (APA, 1987).

**Research on the Axis II Disorders**

With the publication of the DSM-III, the study of personality pathology became systematized. Prior to this, personality pathology was investigated primarily within clinical populations. However, with the publication of Axis II, researchers operating within the academic tradition of personality psychology have begun to scale the disorders and investigate the Axis II system empirically (Jones, 1987; Millon, 1987). One prominent area of investigation has been the previously unexplored relationships between the Axis II disorders and normal personality variables. The great
majority of these relationships have been established between either various
trait/factor models of personality or measures of interpersonal variables.

With respect to trait/factor approaches, comparisons have been made
between the disorder scales and the five factor inventory (Shopshire &
Craik, 1994; Costa & McCrae, 1990), the 16PF (Terpylak & Schuerger,
1994; DeLamatre & Schuerger, 1992), and the Eysenk Personality
Questionnaire (EPQ; O’Boyle & Holzer, 1992). The typical study in this
area involving the five factor model is one by Costa and McCrae (1990)
who found that the extraversion factor was strongly related to the
Histrionic personality disorder while the introversion factor was strongly
related to the Schizoid disorder. Similarly, DeLamatre and Schuerger
(1992) found that on the 16PF the Histrionic disorder was positively
associated with factor F, enthusiasm whereas the Schizoid disorder was
inversely associated with this factor. In addition, these researchers found
that factor H, social boldness was positively associated with the Narcissistic
disorder whereas this same factor was inversely associated with the
Avoidant disorder. Finally, on the EPQ most of the disorder scales were
associated with the neuroticism factor (O’Boyle & Holzer, 1992).

Another large area for research has involved comparisons between
variables of an interpersonal nature and the Axis II disorders dimensions.
A number of these studies have attempted to establish relationships between
the personality disorders and the interpersonal circumplex model of
interpersonal interactions (Soldz, Budman, Demby, & Merry, 1993;
DeJong, van den Brink, Jansen, and Schippers, 1989; Morey, 1985). The
circumplex was originally conceived by Leary (1957) and is constructed
around two axes, control and affiliation. The typical study in this area will
plot the personality disorders onto the circumplex. For example, DeJong
et al. (1989) found that the Narcissistic disorder was very high on the control axis whereas the Dependent disorder was very low on this axis. Many of the studies in this area tend to find that the disorder scales tend to cluster on the negative side of the affiliation axis.

Another study which has investigated relationships between the Axis II dimensions and interpersonal variables was conducted by Carver (1990). In this study, the Axis II dimensions were associated with a number of indices of relational functioning such as loneliness, interpersonal betrayal and the ability to initiate and enhance relationships. Results indicated a number of significant relationships. For example, the Paranoid scale was positively related to loneliness and the Passive-aggressive scale was positively associated with the interpersonal betrayal scale. In addition, the Narcissism scale was positively correlated with relationship initiation but inversely associated with relationship enhancement.

Although research on the psychological correlates of the Axis II system is accumulating, there have been fewer investigations into associations between occupational variables and the Axis II disorders. This is significant because the DSM-III-R specifies deficits in occupational functioning as one criteria for a personality disorder diagnosis. One of the few exceptions was a longitudinal study conducted by Drake and Vaillant (1985). These researchers found that of those individuals diagnosed with a personality disorder, 72% never had a skilled job, 42% had been unemployed for more than four years, and 79% had poor job satisfaction.

To summarize, the present study is an investigative exploration into the relatively less researched area of the occupational correlates of the personality disorders as well as an expansion of previous research into the normal personality correlates of personality disorders. With respect to the
expected relationships between the variables, the primary purpose of the present study is exploratory. Therefore, specific hypotheses concerning the relationships between Holland's types and the personality disorders will not be presented.
CHAPTER II
REVIEW OF THE LITERATURE

Holland (1959, 1966, 1973, 1985a) has presented a theory of vocational personality and vocational choice which states that vocational interests are an expression of personality and can be summarized under six vocational personality types. These types have been labeled as follows: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. Research evidence regarding Holland's theory is extensive. Holland (1985a) summarized the results from over 400 studies conducted during the period from 1959 to 1983. In addition, Tinsley (1992) recently stated that the Journal of Vocational Behavior receives more manuscripts examining aspects of Holland's theory than any other topic. In order to help characterize this wealth of information Holland (1985a) proposed grouping studies according to the issues addressed. He proposed four categories: (1) personality types and patterns, (2) environmental models and patterns, (3) people in environments, and (4) cross-national research.

This review is concerned with the first of these four categories, the personality types and patterns which have drawn the most extensive research effort. Within this category Holland proposed five sub-categories: (1) characteristics of the types, (2) indices of vocational choice stability, (3) development of the types, (4) personal and occupational outcomes, and (5) typological structure. Again, the focus of this review will be narrowed to encompass the first of these categories, the characteristics of the types.

Type Characteristics: Overview of Studies

Holland (1959, 1985a) formulated the types out of his experience as a vocational counselor in military, educational, and clinical settings. Using the definitions explicated by Holland, researchers have investigated the
relationships between the vocational types and a host of variables. Many of these variables can be classified within three categories: abilities, personality scales and personality inventories. For the purposes of the literature review the inventories used in these studies will be broadly summarized below. However, an analysis of the specific relationships found in these studies will be postponed and subsequently integrated within a review focusing on the characteristics of each vocational type.

Abilities. Turning to studies of the relationships between vocational types and abilities, Holland (1985a) stated that different types develop different abilities which correspond to the demands of a type-specific occupation. Holland (1977) presented evidence from over 7000 college freshman that specific types report specific abilities. Kelso, Holland, and Gottfredson (1977) extended this research beyond self-reports of competencies by comparing SDS scales to the Armed Forces Vocational Aptitude Battery (ASVAB). Similarly, Randahl (1991) compared the general theme scales of the Strong-Campbell Interest Inventory (SCII) to the General Aptitude Test Battery (GATB). All of these studies provide evidence for relationships between measured vocational interests and abilities. A related line of research has been forwarded by Prediger (1982). This study looked at the tasks in which the vocational types prefer to engage. It was found that the types could be classified according to their preference for working with data, ideas, people, and things.

Personality variables. One of the best sources for comparisons with personality variables has been provided by Holland (1977). This manual contains correlations between the VPI and The Guilford-Zimmerman Temperament Survey (GZTS), the California Psychological Inventory
(CPI), the 16 Personality Factor Questionnaire (16PF), and the Edwards Personal Preference Inventory (EPPS).

Measures of vocational type have also been compared with the Allport Study of Values (ASV; Williams, 1972), the Myers-Briggs Type Indicator (MBTI; Dillon & Weissman, 1987), the Bem Sex Role Inventory (BSRI; Miller, Knippers, Burley, & Tobacyk, 1993), and the Eysenck Personality Questionnaire (EPQ; Goh & Leong, 1993). In addition, researchers have looked at the relationships between the types and measures of private self-consciousness and self-monitoring (Carson & Mowsesian, 1993).

Researchers have related the types to inventories designed to test the Big Five factor model. This line of research originated in a study by Costa, McCrae, and Holland (1984) using the SDS and the original NEO inventory which contained measures of three of the five factors; neuroticism, extraversion, and openness to experience. More, recently, there has been an expansion to comparisons with the full five factor model using the revised NEO forms which contain measures of all five factors (Holland, Johnston, & Asama 1994; Tokar & Swanson, 1994). Gottfredson, Jones, and Holland (1993) have provided an interesting variation on this theme by classifying a number of previous studies containing comparisons between vocational types and various personality inventories within a Big Five taxonomy. The scales were organized underneath each of the Big Five factors using correspondence tables provided by Digman (1990).

Relative to these studies comparing vocational types and normal personality variables, there have been fewer studies looking at psychopathology and maladjustment in relation to vocational type. Most of
these comparisons are between the more pathological poles of certain scales on inventories which have been designed primarily to assess normal personality. Such comparisons have been between the measures of the types and the neuroticism scale of the NEO (Costa et al., 1984), the emotional stability scale of the GZTS, and the socialization, self-control, and well being scales of the CPI. Also, on the 16PF, there are the factor C scale which measures ego strength, the factor O scale which measures insecurity, and the factor Q3 scale which measures self-conflict. In addition, comparisons have been made between both the neuroticism and psychoticism scales of the Eysenck Personality Questionnaire (EPQ; Goh & Leong, 1993). Most recently, Holland, Johnston, & Asama (1994) compared a measure of the types to an inventory exclusively designed to detect pathology, the Personality Styles Inventory (PSI; Silver & Malone, 1993). This inventory is based on the DSM-III-R and is developed to measure six character structures; depressive, paranoid, narcissistic, impulsive, hysterical, and obsessive-compulsive.

Even though studies comparing the Holland typology to maladjustment have been few and recent, this program of research does build upon an earlier research tradition which explored the relationship between vocational interest patterns and various forms of psychopathology (Osipow, 1983). The majority of this work occurred in the 1950's and the 1960's and used the Kuder Preference Record and the Strong Vocational Interest Blank in comparison with inventories such as the Bell Adjustment Inventory and the MMPI. Both normal and clinical samples have been used (Gobetz, 1964). Osipow (1983) summarized the results of these investigations by stating that one consistent finding throughout these studies has been that maladjusted individuals have greater interests in artistic,
literary, or musical careers and lower interests in mechanical and scientific areas.

Type Characteristics: Specific Relationships

The previously reviewed studies demonstrate that since Holland's original (1959) theoretical explication of the types, a considerable amount of empirical research efforts have attempted to further an understanding of the characteristics of Holland's vocational types. The following section will attempt to summarize the specific results of the previous studies into a synthesis or profile of each vocational type based on the empirical evidence provided thus far.

Realistic type. Originally conceived by Holland (1959) as the "Motoric Orientation", this type is typified in engineers, technicians, farmers, and construction workers. Prediger (1982) found that Realistic types prefer to work with things (e.g., machines, tools). These preferences appear to manifest themselves in technical competencies (Holland, 1977) spatial ability, and manual dexterity (Randahl, 1991).

Holland (1959) theorized that, above all, Realistic types prefer to play masculine roles. This assertion has been supported by Miller et al. (1993) who found 69% of those characterized as masculine on the BSRI were of the Realistic type. Similarly, on the CPI Realistic types were inversely related to the femininity scale (Holland, 1977). Additional support has been provided by Holland (1985b) who reported that in a sample of 2169 high school boys 40.06% were of the Realistic type, whereas in a sample of 2447 high school girls, only .57% or 14 girls were Realistic.

Normal personality variable comparisons support the Realistic type as typified by the characteristics associated with traditional masculinity.
On the 16PF Realistic types were positively associated with factor A, reserved and critical, and factor I, tough-minded and self reliant. On the GZTS Realistic types tended to score lower on the friendliness scale, thus characterizing themselves as more easily aroused to aggressive action (Holland, 1977). Similarly, on the MBTI, Realistic types were positively associated with the sensing and thinking scales, thus characterizing themselves as concrete and detail oriented in their perceptions and logical in their judgments (Dillon & Weissman, 1987). Finally, with respect to the NEO, an interesting finding emerges across three of the studies using this measure (Gottfredson, Jones, & Holland 1993; Holland, Johnston, & Asama 1994; Tokar & Swanson, 1994; ). Realistic type scores for men were inversely associated with openness to experience scores. Low openness scores were associated with conventional and practical attitudes and are in keeping with the MBTI scores on the sensing scale. However, for women Realistic scores were positively associated with openness scores, thus indicating and unconventional and liberal attitude.

With respect to measures of maladjustment and psychopathology, with one exception, little of significance was found for Realistic type scores for females. However, Realistic types scores for males were, in a number of comparisons inversely associated with measures of maladjustment. Realistic type scores for males were inversely related to neuroticism in both the EPQ and one of the NEO studies (Holland et al. 1994). In addition, Realistic type scores for males were positively related to Factor C, ego strength and inversely related to the depression scale on the PSI (Holland, et al. 1994). These results suggest that Realistic type males are characterizing themselves as more hardy and relatively less affected by negative emotions and subjective distress.
However, Realistic type scores were associated with two measures of maladjustment, obsessive/compulsive scores on the PSI for men (Holland et al. 1994) and psychoticism scores on the EPQ (Goh & Leong, 1993) for both men and women. Higher obsessive-compulsive scores are related to an excessive concern with procedures and perfection, whereas psychoticism scores are associated with characteristics such as unsociable, often troublesome, not fitting in, and unempathic (Silver & Malone, 1993). In sum it would seem that, at least for men, studies have found the Realistic type characteristics to be most often representative of the technically skilled, masculine, rugged individualist whose weakness might stem from either perfectionistic or more asocial and quarrelsome tendencies.

Investigative type. Originally conceived by Holland (1959) as the "Intellectual Orientation" this type is perhaps best characterized by the research scientist, but can also be found in pharmacists, dentists, and computer programmers. Prediger (1982) found that Investigative type scores were associated with a preference for working with things and ideas. Holland (1977) found that Investigative types report greater scientific competencies. Relative to the other types Randahl (1991) found that Investigative type scores were associated with the widest range of abilities on the GATB, being significantly associated with verbal, numerical, spatial, and form perception abilities.

Comparisons with the AVS revealed that Investigative types scores were associated with theoretical values. According to Allport (1931) the dominant theoretical value is the discovery of truth. Given this orientation, the chief aim of those with theoretical values is to order and systematize their knowledge. Personality variable comparisons typically reflect this aim. For example, on the CPI, Investigative type scores were positively
associated with the intellectual efficiency scale which was designed to measure the effective utilization of one's general abilities (Holland, 1977). Also, Investigative type scores were associated with higher scores on Fenigstein, Scheier, and Buss' (1975) private self-consciousness scale, indicating a more introspective orientation (Carson & Mowsesian, 1993).

In addition, Investigative types demonstrate a greater preference for abstract and independent thought. Thus they expressed greater openness to experience scale scores on the NEO (Tokar & Swanson, 1994), greater intuitive scale scores on the MBTI (Dillon & Weissman, 1987), and greater factor Q1 scores on the 16PF indicating a more radical and experimenting frame of mind (Holland, 1977). Investigative types concern with independence is manifested further in higher need for autonomy scores on the EPPS and greater scores on the 16PF factor Q2, indicating a tendency toward self-sufficiency.

With respect to comparisons with measures of maladjustment, Investigative types were significantly related to several scales. However, all of these relationships were in the negative direction. Investigative type scores were inversely related to measures of neuroticism in males in one of the NEO samples (Holland et al. 1994) and in the EPQ (Goh & Leong, 1993). Also, Investigative type scores were positively associated with well being scores on the CPI and positively associated with emotional stability scores on the GZTS (Holland, 1977). Finally, Holland et al. (1994) found that Investigative type scores for males were negatively associated with depression scale scores on the PSI. In sum, it would seem that studies have found that Investigative type characteristics are most often associated with a wide range of abilities and an intellectual, abstract, and independent frame of mind.
Artistic types. Conceived by Holland (1959) as the "Esthetic Orientation" Artistic types are represented by the creative writers, painters, architects and philosophers. Prediger (1982) found that Artistic type scores were associated with a preference for working with ideas and people. Holland (1977) found that Artistic types report more artistic ability as well as ability in the foreign languages, whereas Randahl (1991) found that Artistic type scores were related to verbal ability and motor coordination on the GATB.

Comparisons with the AVS have found that Artistic type scores were associated with aesthetic values (Williams, 1972). According to Allport (1931) the dominant aesthetic value is beauty. To this end, those with aesthetic values are interested in form and harmony. Similar to their more Investigative counterparts, Artistic type scores were positively associated with openness to experience scores on the NEO (Costa et al. 1984), intuitive scores on the MBTI (Dillon & Weissman, 1987), and higher scores on the private self-consciousness scale (Carson & Mowsesian, 1993).

However, Artistic types take a different attitude toward their experiences than Investigative types. According to Allport (1931) in seeking to systemize and organize their knowledge, those with theoretical values are interested in the classification of their experiences. In support of this notion, Investigative type scores were positively associated with thinking scores on the MBTI indicating a preference for objective and rational thought processes (Dillon & Weissman, 1987). In contrast, Allport (1931) states that those with aesthetic values are more interested in the meaning and significance of their experiences. In support of this notion, Artistic type scores were positively associated with feeling scores.
on the MBTI indicating a preference for subjectivity, values, and the emotional sphere (Dillon & Weissman, 1987).

Artistic type scores are also associated with imaginativeness as indicated by higher factor M scores on the 16PF and sensitivity as indicated by higher factor I scores on the 16PF. Finally, Artistic type scores were positively associated with flexibility scores on the CPI, indicating adaptability and a lack of rigidity (Holland, 1977).

Another area in which Artistic and Investigative types diverge is in their relationship to measures of maladjustment. Whereas, Investigative type scores have shown no previous relationships to measures of maladjustment, Artistic type scores have been associated with several. In one of the NEO samples, Artistic type scores were positively associated with the neuroticism scale (Costa et al. 1984). On the 16PF Artistic types scores were inversely related to factor C, ego strength, which is representative of emotional stability and positively related to factor O which is representative of insecurity. On the CPI Artistic type scores were inversely related to the self-control and socialization scales indicating impulsivity and a tendency to transgress the mores established by a particular culture (Holland, 1977).

Finally, on the PSI, Artistic type scores were positively associated with hysteria scale scores and narcissism scale scores for women (Holland et al. 1994). Higher hysteria scores have been associated with the expression of intense emotionality and a strong penchant for drama whereas high narcissism scores have associated with a great need for attention and recognition as well as envy over the accomplishments of others (Silver & Malone, 1993). In sum, Artistic type scores have been often associated with abstract, subjective, sensitive, and imaginative
individuals whose weaknesses tend toward impulsivity, self-centeredness and excessive or unstable emotionality.

**Social types.** Conceived by Holland (1959) as the "Supportive Orientation", Social types are represented by the teachers, priests, nurses and social scientists. Prediger (1982) found that these type prefer working with people. Holland (1977) found that Social types tend to report educational competencies. Both Randahl (1991) and Kelso et al. (1977) found that Social type scores were inversely related to spatial ability.

The personality characteristics of Social types reflect Prediger's (1982) finding that these types are people oriented. For example, on all three samples using the NEO, Social type scores were highly correlated with Extraversion scores (Costa et al. 1984; Holland et al. 1994; Tokar & Swanson, 1994). Elevated extraversion scores were also found for Social types on the MBTI (Dillon & Weissman, 1987). In addition, on the 16PF, Social type scores were positively associated with factor A, sociability; factor H, social boldness; and factor Q2, group oriented. On the CPI, Social types were positively associated with the achievement via conformance scale indicating a preference for succeeding within a given structure (Holland, 1977). On the AVS Social type scores were positively associated with social values, indicating a humanistic orientation (Williams, 1972). Finally, Carson & Mowsesian (1993) found that Social type scores were positively associated with Lennox and Wolfe's (1984) self-monitoring scale indicating a high degree of concern with self presentation and one's social environment.

According to Holland (1959), in addition to a distinctive people orientation, another defining characteristic of the Social types is their willingness to accept the feminine role. This formulation has been
supported by Miller et al. (1993) who found that 71% of those characterized as feminine on the BSRI were of the Social type. Additional support was provided by Holland (1985b) who reported that in a sample of 2447 high school girls 66.69% were of the Social type, whereas in a sample of 2169 high school boys only 20.06% were Social. Many comparisons with normal personality variables support the Social type as characterized by the characteristics associated with the feminine role. On the EPPS Social type scores were positively related to nurturance needs. In addition, on the 16PF Social type scores were positively associated with factor I indicating sensitivity (Holland, 1977). Tokar and Swanson (1994) found that, female Social type scores were positively associated with agreeableness scores on the NEO. Finally, on the MBTI, Social type scores were positively associated with feeling scale scores indicating a preference for emotional issues (Dillon & Weissman, 1987).

With respect to measures of maladjustment, Social types scores more often were associated with the healthy side of the measures. For example, Social type scores were positively related to the well being scale of the CPI (Holland, 1977). Social types scores were also inversely related to neuroticism on the EPQ (Goh & Leong, 1993) and for males on one of the NEO samples (Tokar & Swanson, 1994). In addition, for males, Social type scores were negatively associated with the paranoia and depression scales of the PSI (Holland et al. 1994). However, in the case of females, Social type scores were not completely free from positive associations with measures of maladjustment. Similar to their Artistic counterparts, Social type scores for women were positively related to both the narcissism and hysteria scales of the PSI, indicating as before, a tendency toward excessive emotionality and self-centeredness (Holland et al. 1994). In sum, Social
type scores are often characteristic of people oriented, extraverted, nurturant individuals whose weaknesses, at least for women, tend toward narcissism and hysteria.

**Enterprising type.** Conceived by Holland (1959) as the "Persuasive Orientation" these types are represented among managers, salesmen, and politicians. Prediger (1982) found that Enterprising types prefer to work with people and data. Holland (1977) found that Enterprising types self report competencies in a number of areas including sales, leadership, education, business, and clerical areas. This finding is in direct contrast to the findings of Kelso et al. (1977) who found no significant relationships and Randahl (1991) who found only one, an inverse relationship between Enterprising type scores and verbal ability on the GATB. This inverse relationship is surprising as normal personality comparisons reveal the Enterprising type to be even more strongly related to measures of extraversion than the Social type on both the NEO and the EPQ (Costa et al. 1984; Goh & Leong, 1993; Holland et al. 1994; Tokar & Swanson, 1994).

Although both the Social and Enterprising types appear to be people-oriented, the character of this orientation is markedly different. This difference is perhaps best captured in comparisons on the CPI (Holland, 1977). Whereas both types are positively related to the sociability scale, Enterprising types are also positively related to the social presence scale. According to Megargee (1972) high scores on both the sociability and the social presence scales of the CPI like to be with people. However, those who are higher on the social presence scale are more manipulative, use others for their own purposes, and derive satisfaction from clever onslaughts on others' defenses. Further support was found in the positive
association between Enterprising type scores and need for exhibition scores on the EPPS (Holland, 1977). Those with a higher need for exhibition wish to appear clever, to talk about personal accomplishments, and to say things in order to see what effect they have on people. Finally, Enterprising type scores were positively and strongly related to the dominance scales on the EPPS, the CPI, and the 16PF (Holland, 1977).

What this evidence appears to be suggesting is that, whereas Social types are more interested in the nurturing and supportive aspects of interpersonal relationships, Enterprising types are more likely to view people objectively and to be concerned with power issues in interpersonal relationships.

With respect to measures of maladjustment, Enterprising type scores were inversely related to neuroticism scores on two of the NEO samples (Holland et al. 1994; Tokar & Swanson, 1994). Enterprising scores were also inversely related to scores on the depression scale of the PSI. In addition, for males, Enterprising scores were inversely related to the paranoia scale of the PSI (Holland et al. 1994). In contrast to these relationships, Enterprising scores were associated with several maladjusted tendencies. Enterprising scores for men were inversely related to factor Q3 on the 16PF (Holland, 1977). Although the magnitude of the relationship is small, high scores on factor Q3 are indicative of a lack of will control and self-conflict. Similar to both the Artistic and Social types, Enterprising type scores show significant positive relationships to the hysteria scale for men and the narcissism scale for women on the PSI (Holland et al. 1994). In sum, Enterprising type scores appear to be characteristic of people oriented, self-assured, dominant individuals whose main weaknesses appear to be hysteria and narcissism.
**Conventional type.** Conceived by Holland (1959) as the "Conforming Orientation" these types are characteristic of the accountants, bankers, secretary, and military personnel. Prediger (1982) found that Conventional types prefer working with data and things. Holland (1977) found that Conventional types report business and clerical competencies. Similarly, Kelso et al (1977) reported that Conventional types score higher on a measure of coding speed on the ASVAB, whereas Randahl (1991) reported higher numerical ability scores on the GATB.

Holland (1959) characterized the personality of the Conventional type as the essence of self-control. Comparisons with normal personality variables support this formulation. For example, on the NEO, Conventional type scores were positively associated with conscientiousness scores (Holland et al. 1994; Tokar & Swanson, 1994). Similarly, on the GZTS Conventional type scores were positively related to the restraint scale and inversely related to the emotional expression scale. On the CPI Conventional type scores were inversely related to the flexibility scale indicating a tendency toward rigidity. Also, on the EPPS Conventional type scores were positively related to the need for order scale (Holland, 1977). Finally, on the MBTI Conventional type scores were positively associated with the judging scale which indicates a preference for decision-making and control (Dillon & Weissman, 1987).

In addition to a concern with self-control, it appears that Conventional types can be characterized as highly conservative and conformist. For example, Tokar & Swanson (1994) found that, on the NEO, Conventional type scores were inversely related to openness to experience scores indicating a conventional attitude. Similarly, on the EPPS Conventional type scores were inversely related to the need for
change scale indicating a lack of interest in trying new things. On the CPI Conventional types were inversely related to the achievement via independence scale indicating an aversion to succeeding outside the boundaries of conventionality. Also, on the 16PF Conventional type scores were positively associated with factor G, super ego strength scores indicating a moralistic attitude (Holland, 1977). Finally, on the MBTI, Conventional type scores were positively associated with the sensing scale indicating a practical and concrete world view (Dillon & Weissman, 1987).

Comparisons with measures of maladjustment have found several significant relationships. Holland et al. (1994) found that Conventional type scores for men were inversely related to the depression scale of the PSI and the neuroticism scale of the NEO. However, none of the other comparisons between neuroticism and the Conventional type reached significance (Costa et al. 1984; Goh & Leong, 1993; Tokar & Swanson, 1994). Other relationships were with the more pathological end of the scales. For example, Conventional type scores were inversely related to the well being scale of the CPI. Lastly, Conventional type scores were positively related to the obsessive-compulsive scale of the PSI (Holland et al. 1977). In sum, Conventional type scores are associated with clerically skilled, self-controlled, conservative, conformist individuals whose weaknesses may be the more compulsive concern with order and perfectionism.

Summary

Throughout the 35 year research history regarding Holland's theory of vocational choice, an extensive literature has been built up regarding the normal personality characteristics and abilities of the vocational types. The results of these studies have added significantly to an understanding of
Holland's (1959) original theoretical formulations. In contrast to this large body of research, relatively little has emerged regarding the abnormal characteristics or maladaptive tendencies specific to each type. One of the few exceptions is a recent study by Holland et al. (1994) which has compared the vocational types to a measure of six character styles drawn from the DSM-III-R. However, more research is needed in this area.

The Axis II Personality Disorders

The scientific investigation of abnormal personality characteristics was greatly advanced following publication of the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III American Psychiatric Association, 1980). The DSM series began publication in 1952 with DSM-I and have continued through the present edition, the revised edition of DSM-III (DSM-III-R, American Psychiatric Association, 1987). This diagnostic system is primarily intended as a summarizing and integrating tool for use by mental health clinicians and researchers for reliably diagnosing and communicating about mental disorders (APA, 1987).

DSM-III-R has achieved a conceptual advantage over previous manuals by employing a multiaxial format for diagnostic purposes. This system requires that every individual be assessed on five axes, each of which indicates a different class of information. Axis I consists of the clinical syndromes; whereas Axis II consists of the personality disorders. Axis III represents physical disorders or conditions. Axis IV is concerned with psychosocial stressors. Finally, Axis V provides a scale designed for a global assessment of functioning (APA, 1987).

Taken together Axis I and Axis II comprise the mental disorders. Axis I clinical disorders are typically representative of the individual's
current symptom picture. Axis I disorders can be conceived as intensifications or disruptions in a patient's habitual style of functioning (Millon, 1981). As such, Axis I disorders are seen as more transient, intense, and dependent on environmental situations than Axis II disorders.

Relative to their Axis I counterparts, Axis II personality disorders are much more pervasive and deeply embedded in the personality structure of the individual, tending to persist over longer periods of time (Millon, 1981). Axis II personality disorders are characteristic of individuals who present maladaptive personality traits. Personality traits can be considered maladaptive when they lead to significant social or occupational impairment or subjective distress (APA, 1987).

**Axis II research.** Although the personality disorder literature is diverse in nature, seven primary issues are receiving the majority of the research interest. These issues are: (1) definition of the disorders, (2) assessment of the disorders, (3) psychological correlates of the disorders, (3) biological correlates of the disorder, (5) development or etiology of the disorders, (6) prevalence or epidemiology of the disorders, and (7) treatment or therapy. The present study is concerned with the psychological correlates of the Axis II personality disorders. However, in order to fully understand the research background regarding the psychological correlates of the personality disorders, reference must be made to some of the issues regarding the definition and assessment of the disorders.

In contrast to previous conceptualizations, the distinction between Axis I and Axis II disorders offers numerous advantages for understanding and researching personality pathology. Prior to the publication of DSM-III, personality pathology was investigated from the perspective of Axis I
disorders (Sabshin, 1989). These investigations made use of a largely clinical population and led to a number of insights regarding the role of personality and personality pathology in affecting Axis I syndromes and symptomology (Sabshin, 1989). In contrast, such practices led to a relatively poor understanding of the relationship between personality pathology and both normal personality and normal populations.

However, the authors of DSM-III have provided the impetus for change by delineating a separate axis for personality pathology and by explicating specific diagnostic criteria for each personality disorder. Presently, a number of researchers from the tradition of academic personality psychology have begun to scale the diagnostic criteria from the eleven personality disorders into a dimensional format (Hirschfeld, 1993). These efforts have led to the development of objective self-report inventories for the assessment of the personality disorders such as the Millon Multiaxial Clinical Inventory (Millon, 1982), the Personality Diagnostic Questionnaire (Hyler, Rieder, Spitzer, & Williams, 1988) and Profile (Jones, 1987).

**Psychological correlates of Axis II.** With the development of these instruments researchers have begun empirical investigation of the relationships between the personality disorders and a number of psychological variables. This investigation has proceeded along three lines. One trend has been to build upon pre-DSM III work and investigate a number of empirical associations between personality disorders and the Axis I syndromes. For example, the Antisocial and Borderline personality disorders have been found to be related to substance abuse (Cadoret, O'Gorman, Troughton, & Heywood, 1985). Also, the Avoidant
personality disorder has been found to be related to anxiety disorders (Sanderson, Wetzler, Scott, Beck, & Betz, 1994).

Another trend has been to investigate the relationships of the personality disorders with each other. McLemore and Brokaw (1987) working in the interpersonal tradition, found that there seems to be a great deal of overlap between the Axis II disorders when their corresponding social behaviors are mapped out. Similarly, Carver (1990) using Profile found that a number of the disorders were intercorrelated. Also, Widiger and Rogers (1989) have reported that the average proportion of multiple diagnosis was 85%, with a range of 76% for Dependent personality disorder to 100% with Paranoid personality disorder. Explanations for this fact range from imprecision in the standard diagnostic categories to the hypothesis that different personality disorders may involve similar characteristics (McLemore & Brokaw, 1987).

Finally, researchers have begun to explore the empirical relationships between Axis II personality disorders and normal personality variables. The prominent approach in this area has been comparisons between the Axis II disorders and the Big Five factor model of personality (Shopshire & Craik, 1994; Yeung, Lyons, Waternaux, & Faraone, 1993; Costa & McCrae, 1990; Wiggins & Pincus, 1989). Most of the findings are in accordance with those of Costa and McCrae (1990) who correlated the NEO with the Millon Clinical Multiaxial Inventory II (MCMII) and found a number of significant relationships. For example, both the Histrionic and Narcissistic scales demonstrated strong positive correlations with the extraversion scale. Conversely, the Avoidant and the Schizoid scales demonstrated strong negative correlations with the extraversion scale. In addition, the Dependent scale correlated positively with the agreeableness
scale. Conversely, both the Narcissistic and the Antisocial scale were inversely related to the agreeableness scale. Finally, the disorders scales differed in the significance of their relationships to the neuroticism scale. For example, the Avoidant and Borderline scales were strongly correlated with the neuroticism scale, while the Antisocial and the Schizoid scales were unrelated to the neuroticism scale.

A number of studies have also established relationships between the personality disorders and the interpersonal circumplex model of interpersonal interactions (Soldz, Budman, Demby, & Merry, 1993; DeJong, van den Brink, Jansen, and Schippers, 1989; Morey, 1985). Researchers from this tradition view personality disorders as dysfunctional interpersonal relationships (McLemore & Brokaw, 1987). Personality disorders are seen as extreme variants of interpersonal trends. These trends were initially identified by Leary (1957) and arranged in a circumplex around two orthogonal axes: control and affiliation (DeJong et al. 1989). Theoretically, the disorders map well on to the interpersonal styles. However, empirical comparisons using inventories designed to operationalize the circumplex have found that the disorders are differentiated well on the control axis, but are poorly differentiated with respect to the affiliation axis. Many of the disorders cluster on the negative side of the affiliation axis (DeJong et al. 1989).

Another study which has investigated relationships between the Axis II dimensions and interpersonal variables was conducted by Carver (1990). In this study, the Axis II dimensions were associated with a number of indices of relational functioning. These indices included therapists ratings of interpersonal functioning as well as a number of self-report indices including measures of interpersonal betrayal, loneliness, relationship
initiation, and relationship enhancement. Results indicated a number of significant relationships. For example, the Paranoid scale was positively associated with the loneliness scale while the Passive-Aggressive scale was positively associated with the interpersonal betrayal scale. In addition, the Narcissism scale was positively associated with the relationship initiation scale but inversely associated with the enhancement scale. With respect to the therapist's ratings of interpersonal functioning the strongest relationships were inverse associations between the ratings and the Schizoid and Avoidant scales.

In contrast to this accumulating research, there have been few investigations into the relationships between psychological variables of an occupational nature and the personality disorders. This is somewhat surprising as the DSM-III-R specifies a significant impairment in occupational functioning as one possible indicator of a personality disorder (APA, 1987). One of the few studies to include occupational variables was conducted by Drake and Vaillant (1985). These researchers were able to obtain longitudinal data on a sample of 369 men. 86 of these were diagnosed with a personality disorder using a structured interview method. Of these individuals 72% never had a skilled job, 42% had been unemployed for more than four years, 79% had poor job satisfaction, and 76% had a 1978 income under 15,000. All of these percentages were significantly greater than those of the men who had not been diagnosed with an Axis II disorder.

Another study which looked at both Axis II and occupational variables was conducted by DeMatteo, Williams, & Jones (1992). In this study Profile scores were compared with supervisor ratings of insurance workers as well as a number of objective work performance variables.
Results revealed a number of significant relationships. For example, there was a significant inverse relationship between supervisor ratings of initiative and the Dependent scale. In addition, there was an inverse relationship between supervisor ratings of integrity and the Antisocial scale. Finally, there was a significant inverse relationship between the amount of work completed over a six month period and both the Avoidant and Passive-Aggressive scales (DeMatteo, Williams, & Jones, 1992).

Summary. Empirical research on the Axis II personality disorders has greatly increased following the publication of DSM-III and DSM-III-R. Researchers have adopted a dimensional perspective regarding the disorders and have begun to scale the Axis II criteria into self-report inventories. With this line of investigation, researchers have begun to investigate the psychological correlates of the Axis II disorders. Researchers have compared Axis II variables to normal models of personality such as the Big Five factor model and the Interpersonal Circumplex model of interpersonal functioning. However, in contrast to the 35 year research tradition that has been conducted on Holland's vocational types, the empirical research tradition on the psychological correlates of the Axis II system is in its infancy. Most notable is the lack of research with respect to the occupational correlates of the personality disorders.
CHAPTER III

METHOD

Participants

Data was collected from 347 participants. Participants were undergraduate students who volunteered for the study in exchange for nominal course credit. Of the 347 cases, 55 cases were incomplete. This left a sample of 292 complete data sets. Participants were 56% female. Ages ranged from 17 to 47 (mean = 20; SD = 2.77).

Procedure

Participants were administered the Self-Directed Search: A Guide to Educational and Occupational Planning (Holland, 1985b), and Profile (Jones, 1987).

Instruments

The Self-Directed Search: A Guide to Educational and Vocational Planning. The Self-Directed Search (SDS, Holland, 1977, 1985b) is a 228-item self-report inventory designed to assess Holland's six occupational personality types: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. The SDS assessment booklet contains five scales which are designed to yield an estimate of the respondent's occupational type. The 66-item Activities scale (11 items under each type) asks respondents to indicate by responding "like" or "dislike" to their preference for a number of different activities. For example, under the Realistic Activities scale subjects are asked whether they would like to "fix electrical things". The 66-item Competencies scale asks respondents to indicate by responding "yes" or "no" their ability to accomplish a number of tasks. For example, on the Artistic Competencies scale respondents are asked to respond to the statement, "I can play a musical instrument". The 84-item Occupations
scale asks respondents to indicate by responding "yes" or "no" their preference for a number of different occupations. Fourteen different occupations are located under each type. Each of these scales is scored by summing the number of "like" or "yes" responses.

The two Self-Estimates scales contain six items which ask each individual to assign a rating from one through seven for an ability under each occupational type. For example, under the Enterprising type, respondents rate sales ability on one scale and managerial ability on the other. The scores on these scales are the numerical amount of the ratings. The overall SDS score is computed by summing the five scales under each type yielding an overall score for each occupational personality type (Holland, 1985b).

Internal consistency estimates for the SDS vary by age and gender. Alphas have ranged from a high of .93 on the Investigate and Artistic summary scales for 26 to 74 year old males to a low of .81 on the Realistic summary scale for 14 to 18 year old females. Standard errors of measurement range from a high of 3.82 on the Social summary scale for 14 to 18 year old males to a low of 2.50 on the Social summary scale for 26-74 year old females (Holland, 1985b).

Validity for the SDS has been established in a number of ways. Predictive validity studies have compared SDS summary codes with occupational choice three years later (Gottfredson & Holland, 1975). Results indicated 43% of men's and 66% of women's high point SDS summary code agreed with the first letter Holland classification of their current job. Concurrent validity studies comparing SDS high point codes and current occupations have revealed a moderate degree of success (Holland, 1985b). Results have ranged from a high of 63% agreement for
females to 62% for males. Holland (1985b) reports that these estimates of concurrent and predictive validities are comparable with, and sometimes exceed those of other interest inventories.

Evidence also supports the construct validity of the SDS. For example, Costa et al., (1984) examined the relation of the SDS to the NEOInventory. The patterns of correlations are often consistent with the formulations of SDS scales. The SDS scales have also been related to the Armed Services Vocational Aptitude Battery (ASVAB; Kelso, Holland, and Gottfredson, 1977). Results indicated that different types were related to the expected aptitudes. Self-ratings of ability and self-reports of competencies accounted for more variance in the ASVAB scales than did the other SDS scales. Finally, (Holland & Rayman, 1986) report that the SDS personality types are associated with certain values. For example, comparisons between the SDS scales and the Allport-Vernon-Lindsay (1931) study of values found that the Artistic type is associated with aesthetic values and the Conventional type is associated with Christian-conservative values.

**Profile.** This inventory, developed by Jones (1987) is a 180-item self-report inventory designed to assess the dimensions of personality disorder characterized as Axis II by the DSM-III-R (APA, 1987). Profile contains 15-item measures of each of the 11 personality disorder dimensions. In addition, Profile contains a 10-item scale to assess socially desirable responding and a 5-item scale designed to assess infrequency or random responding. All Profile items are presented in a 5-point Likert format where respondents are asked to rate statements as to "how true they are for me". Items measure only one construct and are non-overlapping. Profile typically requires 30-45 minutes for completion.
Previous research indicates that Profile scores are internally reliable. Alpha coefficients have ranged from a low of .68 for the infrequency scale to a high of .82 for the schizoid scale. Test-retest correlations obtained over a ten week interval range from .44 for the infrequency scale to .81 for the histrionic scale. Mean interitem correlations vary from .13 for the obsessive-compulsive scale to .30 for the infrequency scale.

Evidence is also suggestive of the validity of Profile. Profile scores have been related to measures of both normal and abnormal personality. For example, Profile scores are significantly related to comparable scores from the Millon Clinical Multiaxial Inventory (Millon, 1982) and to therapists' ratings of Axis-II disorders (Jones, 1987). Cohn, Carver, & Jones (1989) found extensive covariation between Profile scale scores (with the exception of the Obsessive-Compulsive scale) and the MMPI dimensions of psychathenia and schizophrenia. In addition, all of the Profile scale scores (with the exception of the Obsessive-Compulsive and the Antisocial scales) correlated significantly in an inverse direction with the Hogan Personality Inventory normal personality index of adjustment.

Profile has also proven successful in predicting certain variables. For example, the Antisocial scale significantly predicted a number of variables reflecting criminal behavior among a sample of convicted felons (e.g., age a first arrest, number of arrests) (Jones, 1987). In addition, Profile scale scores have proven predictive of supervisor ratings of insurance workers (DeMatteo & Jones, 1992). For example, higher scores on the Passive-Aggressive and Avoidant scales were negatively related to the rating "works well with others". Within the sample, Profile scale scores were also predictive of a number of objective variables. For example, there was a significant negative relationship between Dependent
scale scores and the amount of work completed in a six month period (DeMatteo & Jones, 1992).
CHAPTER IV
RESULTS

The primary focus of this study was to explore the relationship between a measure of the Axis II personality disorders and a measure of the vocational types specified in Holland's (1985) theory of vocational choice. Prior to examining the data, a cutoff score was established at the 70% for both the social desirability and infrequency validity scales of Profile. Two respondents scored above the established cutoff on the infrequency scale. These subjects were eliminated from the sample on the premise that their elevated scores suggested random rather than valid responses. None of the respondents were above the established cutoff on the social desirability scale. This left a total of 290 complete data sets.

Specific Relationships

The correlation coefficients between the vocational types as measured by the SDS and the Axis II disorders as measured by profile are presented in Table 1. Twenty-three of 66 comparisons were significant at either the .05 or .01 level. In order to gain clarification regarding the amount of variance accounted for by all of the disorder scales in each of the vocational type scales, a series of stepwise multiple regression analyses was used to predict the six occupational type scores using the Profile personality disorder scales as predictors. Table 2 contains the statistics for each of these analyses.

Realistic scores were best predicted by the Histrionic, Antisocial, Avoidant, and Schizoid scales. Realistic types tended to score higher on the Schizoid and Antisocial scales and lower on the Avoidant and Histrionic scales. Investigative scores were also predicted by the Schizoid scale as well as the Paranoid scale. Investigative types tended to have elevated
Table 1: Holland Types Correlated With Axis II Dimensions

<table>
<thead>
<tr>
<th></th>
<th>R</th>
<th>I</th>
<th>A</th>
<th>S</th>
<th>E</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA</td>
<td>-.11</td>
<td>-.10</td>
<td>-.15*</td>
<td>-.07</td>
<td>-.09</td>
<td>-.03</td>
</tr>
<tr>
<td>SC</td>
<td>.18**</td>
<td>.21**</td>
<td>-.02</td>
<td>-.26**</td>
<td>-.12*</td>
<td>.00</td>
</tr>
<tr>
<td>ST</td>
<td>.05</td>
<td>.11</td>
<td>.25**</td>
<td>.04</td>
<td>-.12*</td>
<td>-.08</td>
</tr>
<tr>
<td>BO</td>
<td>-.05</td>
<td>.01</td>
<td>-.02</td>
<td>-.04</td>
<td>-.17**</td>
<td>-.11</td>
</tr>
<tr>
<td>HI</td>
<td>-.19**</td>
<td>-.20**</td>
<td>.05</td>
<td>.20**</td>
<td>.11</td>
<td>.03</td>
</tr>
<tr>
<td>NA</td>
<td>.05</td>
<td>.06</td>
<td>.03</td>
<td>-.12*</td>
<td>.24**</td>
<td>.10</td>
</tr>
<tr>
<td>AV</td>
<td>-.12*</td>
<td>-.08</td>
<td>-.10</td>
<td>-.05</td>
<td>-.28**</td>
<td>-.11</td>
</tr>
<tr>
<td>DE</td>
<td>-.10</td>
<td>-.05</td>
<td>-.12*</td>
<td>-.12*</td>
<td>-.41**</td>
<td>-.21**</td>
</tr>
<tr>
<td>CO</td>
<td>-.05</td>
<td>.04</td>
<td>-.14*</td>
<td>.09</td>
<td>.12*</td>
<td>.21**</td>
</tr>
<tr>
<td>PG</td>
<td>.05</td>
<td>.01</td>
<td>-.05</td>
<td>-.10</td>
<td>-.03</td>
<td>-.11</td>
</tr>
<tr>
<td>AS</td>
<td>.11</td>
<td>.06</td>
<td>-.02</td>
<td>-.16**</td>
<td>.06</td>
<td>-.02</td>
</tr>
</tbody>
</table>

n = 290

* p ≤ .05
** p ≤ .01

Holland types
- Realistic
- Investigative
- Artistic
- Social
- Enterprising
- Conventional

Axis II disorders
- Paranoid
- Schizoid
- Schizotypal
- Borderline
- Histrionic
- Narcissistic
- Avoidant
- Dependent
- Compulsive
- Passive-Aggressive
- Antisocial
- Antisocial

41
Table 2: Regression Summary Table

<table>
<thead>
<tr>
<th>Predictors</th>
<th>( \beta )</th>
<th>( R )</th>
<th>( R^2 )</th>
<th>( F )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Criterion: Realistic</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HI</td>
<td>-.19</td>
<td>-.15</td>
<td>.32</td>
<td>.10</td>
</tr>
<tr>
<td>AS</td>
<td>.11</td>
<td>.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AV</td>
<td>-.12</td>
<td>-.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC</td>
<td>.18</td>
<td>.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Criterion: Investigative</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC</td>
<td>.21</td>
<td>.31</td>
<td>.30</td>
<td>.09</td>
</tr>
<tr>
<td>PA</td>
<td>-.10</td>
<td>-.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Criterion: Artistic</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST</td>
<td>.25</td>
<td>.39</td>
<td>.38</td>
<td>.15</td>
</tr>
<tr>
<td>PA</td>
<td>-.15</td>
<td>-.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DE</td>
<td>-.12</td>
<td>-.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Criterion: Social</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC</td>
<td>-.26</td>
<td>-.25</td>
<td>.36</td>
<td>.13</td>
</tr>
<tr>
<td>HI</td>
<td>.20</td>
<td>.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST</td>
<td>.04</td>
<td>.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS</td>
<td>-.16</td>
<td>-.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Criterion: Enterprising</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DE</td>
<td>-.41</td>
<td>-.39</td>
<td>.46</td>
<td>.21</td>
</tr>
<tr>
<td>NA</td>
<td>.24</td>
<td>.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Criterion: Conventional</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DE</td>
<td>-.21</td>
<td>-.19</td>
<td>.28</td>
<td>.08</td>
</tr>
<tr>
<td>CO</td>
<td>.21</td>
<td>.19</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( n=290 \) \hspace{1cm} **p \leq .01**
Schizoid scores and lower Paranoid scores. Artistic scores were best predicted by the Schizotypal, Paranoid, and Dependent scales. Artistic types tended to report more Schizotypal tendencies and less Dependent and Paranoid tendencies. The Social type was best predicted by the Schizoid, Histrionic, Schizotypal, and Antisocial scales. In contrast to Realistic scores, Social types scored higher on the Histrionic scale and lower on Schizoid and Antisocial scales. Social types also demonstrated elevated Schizotypal scores. Enterprising scores were best predicted by the Dependent and Narcissistic scales. Enterprising types tended to score higher on the Narcissistic scale and lower on the Dependent scale. Finally, Conventional scores were best predicted by the Dependent and Obsessive-Compulsive scales. Conventional types tended to score higher on the Obsessive-Compulsive scale and lower on the Dependent scale.

Overall Patterns

The strongest relationships were found between the Axis II disorder scales and the Enterprising scale with 21% of the variance accounted for in the regression analysis and 7 of the 11 correlation coefficients reaching significance. In addition, the relationship between the Enterprising and the Dependent scales (−.41) was the highest in the correlation matrix. Thus, Axis II characteristics are more descriptive of the Enterprising type. Conversely, both the Conventional and Investigative scales had fewer significant relationships with the Axis II scales and less variance accounted for. From the perspective of the disorder scales, the Schizoid, Histrionic, and Dependent scales demonstrated more and stronger significant relationships across type scales. In contrast, the Passive-Aggressive scale was unrelated to any of the type scales.
Across the matrix, most of the significant correlations were modest. Sixteen of the 23 significant correlations and the direction of most of the correlations were negative suggesting that Axis II characteristics in general are inversely related to vocational personality and vocational interests. However, within each vocational type there was at least one positive relationship between an Axis II scale and the corresponding vocational type scale suggesting that Axis II characteristics are positively associated with certain vocational interests and vocational personality characteristics.

Gender Analyses

Gender analyses were conducted on the data in order to assess whether differential patterns of relationships would be found for men versus women. Data from 124 men and 161 women was examined. Gender information for five cases was missing. For male respondents, the correlation coefficients between the axis II disorders and Holland's type scores are presented in Table 3. Table 4 contains the regression equations predicting the Holland type scores with the Axis II scales. For female respondents the correlation coefficients are presented in Table 5 while the regression equations are presented in Table 6.

The results of these analyses yield a number of differences with respect to gender. For men the number of significant correlations and percentage of variance accounted for within each equation far exceeds those found among women of the sample. More specifically, for men 18 of 66 correlations were significant and the percentage of variance accounted for ranged from 13% to 24%. Conversely, among female respondents 9 of 66 correlations were significant and the percentage of variance accounted for ranged from 0% to 21%. In addition, among women there was only one positive predictor, that being the correlation between the Schizotypal
scale and the Artistic scale, whereas in the male sample each vocational type scale had at least one positive predictor. Thus, relative to the men in the sample, Axis II characteristics are not as descriptive of the vocational type scores of the women in the sample.
Table 3: Holland Types Correlated With Axis II Dimensions for Males

<table>
<thead>
<tr>
<th></th>
<th>R</th>
<th>I</th>
<th>A</th>
<th>S</th>
<th>E</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA</td>
<td>-.11</td>
<td>-.03</td>
<td>-.21*</td>
<td>-.04</td>
<td>-.03</td>
<td>.02</td>
</tr>
<tr>
<td>SC</td>
<td>.13</td>
<td>.23*</td>
<td>-.07</td>
<td>-.22*</td>
<td>-.09</td>
<td>.14</td>
</tr>
<tr>
<td>ST</td>
<td>.19*</td>
<td>.14</td>
<td>.21*</td>
<td>.06</td>
<td>-.21*</td>
<td>-.08</td>
</tr>
<tr>
<td>BO</td>
<td>-.07</td>
<td>-.01</td>
<td>-.12</td>
<td>-.05</td>
<td>-.14</td>
<td>-.06</td>
</tr>
<tr>
<td>HI</td>
<td>-.10</td>
<td>-.26**</td>
<td>.12</td>
<td>.15</td>
<td>.25**</td>
<td>.09</td>
</tr>
<tr>
<td>NA</td>
<td>-.02</td>
<td>.10</td>
<td>-.04</td>
<td>.01</td>
<td>.32**</td>
<td>.25**</td>
</tr>
<tr>
<td>AV</td>
<td>-.15</td>
<td>-.11</td>
<td>-.19*</td>
<td>-.18*</td>
<td>-.25**</td>
<td>-.09</td>
</tr>
<tr>
<td>DE</td>
<td>-.13</td>
<td>-.06</td>
<td>-.16</td>
<td>-.20*</td>
<td>-.34**</td>
<td>-.19*</td>
</tr>
<tr>
<td>CO</td>
<td>-.00</td>
<td>.07</td>
<td>-.21*</td>
<td>.07</td>
<td>.22*</td>
<td>.33**</td>
</tr>
<tr>
<td>PG</td>
<td>.01</td>
<td>.02</td>
<td>-.13</td>
<td>-.17</td>
<td>-.06</td>
<td>-.05</td>
</tr>
<tr>
<td>AS</td>
<td>.17</td>
<td>.11</td>
<td>-.06</td>
<td>-.16</td>
<td>.09</td>
<td>.04</td>
</tr>
</tbody>
</table>

n=124  
* p ≤ .05  
** p ≤ .01
Table 4: Regression Summary Table for Males

<table>
<thead>
<tr>
<th>Predictors</th>
<th>β</th>
<th>R</th>
<th>R²</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Criterion: Realistic</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST</td>
<td>.19</td>
<td>.31</td>
<td>.38</td>
<td>.15</td>
</tr>
<tr>
<td>AV</td>
<td>-.15</td>
<td>-.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS</td>
<td>.17</td>
<td>.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Criterion: Investigative</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HI</td>
<td>-.26</td>
<td>-.32</td>
<td>.42</td>
<td>.18</td>
</tr>
<tr>
<td>SC</td>
<td>.23</td>
<td>.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AV</td>
<td>-.15</td>
<td>-.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST</td>
<td>.14</td>
<td>.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Criterion: Artistic</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST</td>
<td>.21</td>
<td>.40</td>
<td>.45</td>
<td>.20</td>
</tr>
<tr>
<td>AV</td>
<td>-.19</td>
<td>-.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>-.21</td>
<td>-.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Criterion: Social</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC</td>
<td>-.22</td>
<td>-.39</td>
<td>.36</td>
<td>.13</td>
</tr>
<tr>
<td>ST</td>
<td>.06</td>
<td>.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DE</td>
<td>-.20</td>
<td>-.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Criterion: Enterprising</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DE</td>
<td>-.34</td>
<td>-.36</td>
<td>.52</td>
<td>.24</td>
</tr>
<tr>
<td>NA</td>
<td>.32</td>
<td>.41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HI</td>
<td>.25</td>
<td>.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST</td>
<td>-.21</td>
<td>-.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Criterion: Conventional</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>.33</td>
<td>.29</td>
<td>.38</td>
<td>.15</td>
</tr>
<tr>
<td>NA</td>
<td>.25</td>
<td>.21</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

n=124 \( p \leq .01** \)
Table 5: Holland Types Correlated With Axis II Dimensions for Females

<table>
<thead>
<tr>
<th></th>
<th>R</th>
<th>I</th>
<th>A</th>
<th>S</th>
<th>E</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA</td>
<td>-.13</td>
<td>-.14</td>
<td>-.13</td>
<td>-.11</td>
<td>-.15</td>
<td>-.08</td>
</tr>
<tr>
<td>SC</td>
<td>.00</td>
<td>.12</td>
<td>.08</td>
<td>-.17*</td>
<td>-.19*</td>
<td>-.10</td>
</tr>
<tr>
<td>ST</td>
<td>-.02</td>
<td>.12</td>
<td>.25**</td>
<td>.03</td>
<td>-.08</td>
<td>-.12</td>
</tr>
<tr>
<td>BO</td>
<td>-.00</td>
<td>.06</td>
<td>.04</td>
<td>-.05</td>
<td>-.21**</td>
<td>-.19*</td>
</tr>
<tr>
<td>HI</td>
<td>-.01</td>
<td>-.05</td>
<td>-.06</td>
<td>.12</td>
<td>.07</td>
<td>-.04</td>
</tr>
<tr>
<td>NA</td>
<td>-.11</td>
<td>-.07</td>
<td>.11</td>
<td>-.11</td>
<td>.15</td>
<td>-.06</td>
</tr>
<tr>
<td>AV</td>
<td>.01</td>
<td>.02</td>
<td>-.08</td>
<td>-.05</td>
<td>-.29**</td>
<td>-.13</td>
</tr>
<tr>
<td>DE</td>
<td>-.08</td>
<td>-.02</td>
<td>-.12</td>
<td>-.11</td>
<td>-.45**</td>
<td>-.23**</td>
</tr>
<tr>
<td>CO</td>
<td>.01</td>
<td>.08</td>
<td>-.11</td>
<td>.05</td>
<td>.02</td>
<td>.14</td>
</tr>
<tr>
<td>PG</td>
<td>-.01</td>
<td>-.04</td>
<td>.00</td>
<td>.00</td>
<td>-.02</td>
<td>-.19*</td>
</tr>
<tr>
<td>AS</td>
<td>-.07</td>
<td>-.04</td>
<td>.03</td>
<td>-.10</td>
<td>.00</td>
<td>-.12</td>
</tr>
</tbody>
</table>

n=161  
* $p \leq .05$  
** $p \leq .01$
Table 6: Regression Summary Table for Females

<table>
<thead>
<tr>
<th>Predictors</th>
<th>β</th>
<th>Beta</th>
<th>R</th>
<th>R²</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Criterion: Realistic</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>Criterion: Investigative</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>Criterion: Artistic</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST</td>
<td>.25</td>
<td>.34</td>
<td>.25</td>
<td>.06</td>
<td>10.71**</td>
</tr>
<tr>
<td>PA</td>
<td>-.13</td>
<td>-.25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Criterion: Social</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC</td>
<td>-.17</td>
<td>-.17</td>
<td>.17</td>
<td>.03</td>
<td>4.91*</td>
</tr>
<tr>
<td><strong>Criterion: Enterprising</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DE</td>
<td>-.45</td>
<td>-.45</td>
<td>.45</td>
<td>.21</td>
<td>41.18**</td>
</tr>
<tr>
<td><strong>Criterion: Conventional</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DE</td>
<td>-.23</td>
<td>-.21</td>
<td>.28</td>
<td>.08</td>
<td>6.66**</td>
</tr>
<tr>
<td>PG</td>
<td>-.19</td>
<td>-.16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

n=161

*p ≤ .05

**p ≤ .01
CHAPTER V
DISCUSSION

The results of this investigation indicate that a measure of the six vocational personality types associated with Holland's (1985a) theory of vocational personality and vocational choice are significantly related to a measure of the eleven personality disorders defined as Axis II by the DSM-III-R (APA, 1987). A general discussion of these results and the implications of these findings will be organized as follows. First, the significance of the relationships between the six vocational types and the axis II disorders will be discussed. Each vocational type will be taken in turn and discussed with regard to the Axis II relationships. Following will be a more general discussion which will focus on the broader relationships between the two systems.

Vocational Type

A number of significant relationships were found between a measure of Holland's six vocational personality types and a measure of the Axis II personality disorders. The following discussion will first attempt to describe and explain the individual relationships between the vocational types and the Axis II disorders.

Realistic type. Scores on Holland's (1985a) Realistic type scale were positively related to both the Schizoid and the Antisocial scales. Given these positive relationships Realistic types may be more prone to the deficits in social functioning and restricted range of emotional experience characteristic of the Schizoid disorder. In addition, Realistic types may be characterized by the irritable and impulsive disregard for social norms characteristic of the Antisocial disorder (APA, 1987). These results are supported by previous personality comparisons on the 16 PF which finds
that Realistic scores are associated with more reserved and tough minded traits, and on the GZTS where Realistic scores are associated with lower scores on the friendliness scale, thus characterizing these individuals as more easily aroused to aggressive action (Holland, 1977). In addition, Realistic scores were positively associated with psychoticism scores on the EPQ. Higher psychoticism scores suggest that the Realistic types might be more solitary, unempathic, and troublesome with difficulties fitting in.

One possible explanation for these relationships can be found in the writings of Millon (1981). Due to early experience and constitutional endowment Antisocials learn that others are not predisposed to treat them with kindness and respect. These aversive experiences lead to a pessimistic view of human nature, an untrusting and overly suspicious frame of mind that these individuals would likely characterize as "realistic" (Millon, 1981). In their own minds these individuals live in a world where everyone is out for himself or herself and thus he or she adopts the tough and self-reliant masculine role. This orientation can become problematic for the more Antisocial Realistic types when their impulsivity and aggressiveness causes them to neglect their job duties or to infringe on the rights of other workers.

By contrast, Realistic scores are associated with lower scores on the Histrionic and Avoidant scales. Thus, these types may be lacking in the timidity, hesitancy, and evasive qualities associated with the Avoidant disorder and the shallow, flighty gregariousness characteristic of histrionics (APA, 1987). The lack of these qualities serves to further reinforce the characterization of Realistic types as direct, frank, persistent and ultimately, realistic in their actions.
Investigative type. Similar to the Realistic type, Holland's (1985a) Investigative scores were positively related to the Axis II Schizoid scale. However the manifestation of this characteristic in the Investigative type might be somewhat different. Rather than turning to their tools as Realistic types are apt to do, Investigative types would be more likely to disregard social relationships and depth of feeling for the world of abstract, theoretical formulations and scientific experimentation. This abstract and theoretical orientation is supported by Holland's finding that Investigative type scores are associated with greater scientific competencies. Personality variable comparisons are also supportive. Costa et al. (1984) found a strong relationship between Investigative type scores and Openness to Experience scores while Dillon and Weissman (1987) found that Investigative type scores were associated with intuitive scale scores on the MBTI.

The asocial characteristics of scientists were noticed early in vocational research. Roe (1956) stated that one of the most striking aspects of research scientists was the nature of their personal relationships. These were not close, and were relatively unimportant to them in their overall lives. This finding is supported by the inverse relationship between Realistic type scores and sociability scores on the 16PF (Holland, 1977). To reiterate, what one is likely to find with the Investigative type is a rather well developed interest in matters of an intellectual nature in combination with a relatively less developed interest in the intricacies of social interaction. In the more Schizoid Investigative types the maladaptive aspects of these characteristic might become problematic when the quest for scientific knowledge takes precedence over the rights and feelings of the experimental participants. On a brighter note, Investigative types
scores are associated with lower scores on the Paranoid scale. Thus, these types may be relatively free of the general tendency to bear grudges, place blame, scheme, and interpret the actions of everyone as demeaning or threatening (APA, 1987).

**Artistic type.** Within Holland's (1985a) hexagonal scheme the Investigative type is followed by the Artistic type. The results of the present study find that Artistic scores are positively related to the Axis II Schizotypal scale. This finding builds upon previous research which has found that more than other types Artistic type scores are associated with maladjustment. In one of the NEO samples, Artistic type scores were associated with neuroticism scores. On the 16PF Artistic type scores were inversely related to factor C, ego strength, which is representative of emotional stability and positively related to factor O which is representative of insecurity. Finally, Osipow (1983) summarized a long tradition of research occurring in the 1950's and 1960's which found that maladjusted individuals display greater artistic interests.

The relationship between the Schizotypal scale and the Artistic scale builds upon previous personality comparisons because none of these empirical studies have suggested that Artistic types might be found to display the typically Schizotypal odd beliefs, unusual perceptual experiences, peculiarities in speech, and eccentric behavior uncharacteristic of the cultural belief system (APA, 1987). The Schizotypal personality disorder has been portrayed by Millon (1981) as the "eccentric personality pattern". He suggests that the eccentric characteristics displayed by Schizotypals are a direct result of their interpersonal coping style. When motivated to engage in interpersonal interaction, Schizotypals are most often incapable of a coherent and logical presentation of their thoughts.
They become lost in irrelevant topics and pointless digressions and often appear vague and confused (Millon, 1981). Such atypical interpersonal activities can often serve to alienate them from others. One method of countering this alienation might be to turn to heavy introspection, turning inward toward the world of fantasy in an attempt to construct a better reality. Millon (1981) suspects that it is this highly overactive fantasy life which gives rise to the display of eccentric thoughts, perceptions, and resulting behaviors so characteristic of the Schizotypal personality disorder.

However, the very same overactive fantasy life that produces scattered thoughts and eccentric behavior can be responsible for producing artistic works. Jung (1960) states that most individuals rightly fear overindulgence in the world of fantasy for fear of upsetting the stability of the ego. However, Jung (1960) also states that true selfhood, or wholeness of the self, is impossible without integrating the contents of our fantasy worlds. Thus, society turns to the more Schizotypal Artistic types, who find a vocational role and means of satisfying self-expression in the artistic byproducts of their imagination.

Similar to Investigative scores, Artistic scores are associated with lower scores on the Paranoid scale. Thus, like Investigative types, Artistic types are likely lacking in general suspiciousness. In addition, Artistic scores are associated with lower dependent Scale scores. This aversion for dependency is likely to manifest itself in the Artistic type's desire to remain free from conventional ideas and norms (Holland, 1985). These results are supported by the association between Artistic type scores and lower scores on the socialization scale of the CPI and on the factor G, superego strength scale of the 16 PF (Holland, 1977).
Social type. At the bottom of Holland's hexagon are the Social types. Similar to the Artistic type scores, Social scores are associated with elevated Schizotypal scores. This is likely the result of the presence of those Social-Artistic types such as priests, clinical psychologists, and embalmers who are highly interested in people, yet at the same time may be somewhat eccentric.

Another positive relationship was found between the Social scale and Histrionic scale scores. Thus, Social types might be more prone to the extreme gregariousness, attention seeking, self centeredness, and dramatic emotionality characteristic of the Histrionic disorder. These qualities have been found to be characteristic of Social types in relationships between Social type scores and Extraversion scores on the NEO, sociability, enthusiasm, and adventurousness scores on the 16PF and the social interaction scale of the GZTS. In addition, Carson & Mowsesian (1993) found that Social type scores were positively associated with Lennox and Wolfe's (1984) self-monitoring scale indicating a high degree of concern with self presentation and one's social environment. Finally, with respect to maladjustment, Social type scores for women were found to be positively associated with both hysteria and narcissism scores indicating excessive emotionality and self-centeredness (Holland et al. 1994).

Characterized by Millon (1981) as actively dependent, Histrionics have a deep dependence on external sources of approval and attention. Unlike those who display the more passive dependent personality disorder, Histrionic individuals will work extremely hard for attention, often displaying inappropriate emotional outbursts or exhibitionistic behavior (Millon, 1981). The pathology here is that Histrionic individuals place all their worth in their social environment and often refer to themselves only
in terms of their social acquaintances and the effects which they have on them. Consequently they have little identity of their own and become overly dependent on the viewpoints of others (Millon, 1981). In seeking this attention and approval, problems can arise for the more Histrionic Social individuals when their self-centeredness, excessive dramatics and emotionality wear on their co-workers' patience.

In contrast to their association with elevated Schizotypal and Histrionic scale scores, Social scores are inversely related to Schizoid and Antisocial scores. The lack of detachment and high regard for social norms are an obvious byproduct of their extraversion and general humanistic perspective. Another point to be made concerning this pattern of Axis II relationships is that, in many ways, they are opposite of the pattern of relationships evident in the Realistic type scores. This evidence provides additional support for Holland's (1985a) formulation of the Realistic and Social types as opposite.

**Enterprising type.** Adjacent to the Social types are the Enterprising types. Enterprising type scores were found to be positively associated with the Narcissism scale. Thus, in some cases the Enterprising type's natural tendencies toward manipulation of others for economic gain may give way to the social exploitation, arrogance, self-centeredness, and grandiose fantasies of unlimited success characteristic of the narcissistic disorder. Given previous personality comparisons, perhaps the best support for this relationship can be found in the positive relationship between Enterprising scores and the social presence scale of the CPI (Holland, 1977). Megargee (1972) characterizes the high scorer on the social presence scale as one who enjoys social interaction mainly for the purposes of engaging in interpersonal manipulation and clever assaults on the social defenses of
others. In addition, Enterprising type scores were associated with need for exhibition scores on the EPPS indicating need to appear clever and to say things in order to see what effect they have on people (Holland, 1977). Finally, on the PSI Enterprising type scores were associated with greater hysteria scale scores for men and narcissism scores for women.

Narcissists ego building strategies and characteristic self-confidence and ambition often prove adaptive. Millon (1981) states that they often rise to positions of leadership. But for the more Narcissistic Enterprising types problems can arise if the external situation is not in line with his/her respective beliefs. Narcissists have a general disdain for external realities which are not in line with their grandiose self-ideals. Furthermore, they exhibit a characteristic inability to empathize with others. In their pursuit of self-aggrandizement, Narcissists can push themselves, other individuals, or whole organizations far beyond realistic expectations. Without the normal limitations provided by others, the more Narcissistic Enterprising types can find themselves and their subordinates in danger of emotional and physical exhaustion.

On a more positive note, Enterprising scores are strongly associated with lower Dependent personality disorder scores. Even though these types may be arrogant, they do not tend to display the submissiveness, lack of initiative, insecurity, and fear of responsibility characteristic of the Dependent personality disorder.

Conventional type. The final type within Holland's hexagonal system is the Conventional type. Conventional scale scores were found to be associated with elevated Obsessive-Compulsive scale scores. Thus, Conventional types may go beyond a characteristic preference for order and structure and exhibit the perfectionistic, moralistic, overly formal air
of cognitive, affective, and behavioral rigidity often characteristic of the
Obsessive-Compulsive personality. Previous personality comparisons
provide support for this relationship by characterizing the Conventional
type as the essence of conformity and self-control. On the CPI
Conventional scores are associated with lower tolerance and achievement
via independence scores. On the GZTS Conventional scores are associated
with elevated scores on the restraint scale. On the EPPS Conventional
scores are positively associated with the need for order. Finally, on the
16PF, Conventional scores are associated with greater super ego strength.

An inherent preference for order and social norms could help the
more Obsessive-compulsive Conventional types to be successful in the
detailed handling of data and bureaucratic hierarchy inherent in most
Conventional jobs. However, there is a danger that these individuals can
become so lost in the details of their job that they miss the big picture.
Preoccupied with trivialities, these individuals may spend hours looking for
a lost list, when it would take only minutes to compose a new one (APA,
1987). Furthermore, their inherent rigidity produces a great deal of stress
when they are faced with novel decisions. In new situations Obsessive-
compulsives can become exceedingly indecisive, often ruminating for hours
over the most petty details surrounding the issue (Millon, 1981).

Similar to Enterprising scores, Conventional scores are associated
with lower scores on the Dependent personality scale. These types believe
strongly in their work ethic and would be apt to view the clinging
dependencies and avoidance of responsibilities of the dependent as socially
distasteful and immoral.
General Explanation

Turning from the specific to the general one might ask what overall significance can be found in this pattern of relationships. First, the finding that the majority of the correlations between the Axis II scales and the vocational type scales were negative or in that direction is consistent with previous findings by Holland et al. (1994). These researchers found that higher scores on the PSI were associated with low, flat SDS profiles. Holland et al. (1994) theorized that this is indicative of the self-deprecation associated with maladjustment. This is made clear by Holland et al. (1994) in their literal interpretation of a low, flat profile: "I like few activities, have few competencies, only a few occupations interest me, and my abilities are usually below average for a person my age." (Holland et al., 1994 p. 12).

In contrast to the larger number of inverse relationships, one interesting finding is that each type is positively associated with at least one unique personality disorder. The present study suggests that there may well be Antisocial Realistic types, Schizoid Investigative types, Schizotypal Artistic types, Histrionic Social types, Narcissistic Enterprising types, and Compulsive Conventional types. This finding could lend some understanding to the role of pathology in vocational choice. Holland's theory is a model of vocational choice in that the types look for environments which allow them to express their personalities, abilities, and values. An extension of this point of view would view types as seeking out vocational environments which allow for expression of whatever Axis II characteristics they might possess.

Psychoanalytically oriented career development theorists have long invoked the mechanism of sublimation to explain the expression of
psychopathology within occupations (Osipow, 1983). According to Osipow (1983) sublimation refers to a process whereby an individual expresses aspects of personality in work related activities which would be unacceptable if expressed elsewhere. Brill (1949) and Bordin, Nachmann, and Segal (1963) built frameworks of vocational development around the mechanism of sublimation. In contrast to the more typical view of vocational selection which states that individuals select careers based on vocational interests and abilities, psychoanalytically oriented career development theorists view all vocational choice as a method of impulse gratification and anxiety reduction (Osipow, 1983). However, this view is extreme. It is more likely that the vocational environments offer an outlet for many facets of the individual personality of which sublimation is but a part. This moderate viewpoint is supported by the modest correlations and the amount of variance left unaccounted for in the regression equations. However, these findings do provide support for the role of personality pathology in vocational choice.

With respect to the gender analyses, it is obvious that for the men in the group, the Axis II scales are much more predictive of the vocational type scales. Thus, for women, the relationships between the Axis II scales and the vocational type scales are weaker and fewer in number. In addition, with the exception of the Schizotypal/Artistic relationship all relationships were in the inverse direction. One possible reason for this could be restriction of range on the vocational type scales for females. Previous research has found that gender differences frequently exist on the Self-Directed Search scales (Holland & Gottfredson, 1976). However, with the exception of the Realistic scale, the means and standard deviations for men and women's vocational type scores are not significantly different.
Another possible explanation is that women view vocational choice differently. Hansen, Collins, Swanson, & Fouad (1993) have found that the structure of Holland's model is different for men than for women. For example, there is very little difference between the Realistic and Investigative types and the Social type plays a more central role in the structure. Similarly, Osipow (1983) concludes that current career development theories might not be sufficient to explain the career development of women. In regard to the present study, perhaps women do not choose their jobs with an interest in sublimating Axis II characteristics.

Finally, the strength and number of relationships between the Enterprising type scores and the Axis II scales must be noted. This relationship produced the highest amount of variance accounted for in the study. The Enterprising scale was positively correlated with the Narcissistic and Obsessive-Compulsive scales and inversely correlated with the Dependent, Avoidant, Schizoid, Borderline, and Schizotypal scales. Thus, the Enterprising type can be fairly well described by Axis II characteristics. Based on the results of previous studies this relationship is difficult to explain. One hypothesis would be that the aggressive, competitive Enterprising environment is excessively aversive to those with the more neurotic disorders. Most of the disorders found to be inversely associated with the Enterprising scale were also found to be associated with Big Five neuroticism factor (Costa & McCrae 1989). However, Enterprising scores were not related to neuroticism scores on the NEO (Costa et al. 1984).

Implications
Throughout the 35 year research effort associated with Holland's (1985a) theory, a significant portion of research activity has been directed
at explicating and understanding the characteristics associated with Holland's six types. These studies have been quite successful. As a result of this research we now have an extensive list of explanatory terms with which the vocational personality types can be described and understood. The explanatory terms cover a wide range including such constructs as personality traits, needs, values, and abilities. Building upon a tradition started by Holland et al. (1994), the present study expands the explanatory terminology employed in describing the types to include a greater understanding of the abnormal personality characteristics of the types. These comparisons demonstrate which personality disorder characteristics each vocational type is more and less likely to display. This expands our understanding of the character of each of the vocational personality types.

Second, the present study goes beyond research into the personality characteristics of Holland's types and contributes to a research tradition which has attempted to look for connections between various forms of psychopathology and vocational interests (Osipow, 1983). As mentioned previously, this work found that maladjusted individuals had greater artistic interests. The results of the present study agree with previous findings in that Artistic vocational interest scores are associated with Axis II pathology in the form of elevated Schizotypal scores. However, the results of the present study go beyond previous studies and suggest that the entire spectrum of vocational interests is associated with various forms of psychopathology. It would seem that these findings can be attributed to the extensive system of personality pathology represented in the Axis II system. Thus, it would seem that it is not just artistic interests which are associated with pathology. Rather it seems that each vocational type is related to its own type of personality pathology.
Limitations

Overall, the magnitude of the correlation coefficients is modest. Most of the coefficients are around .20. Therefore, caution should be used in interpreting the relationships between the Axis II scales and the vocational types. Second, the present study makes use of a very homogenous sample. Accordingly, caution would be warranted in generalizing these results beyond a group of 18-22 year old college students. Third, all information was collected using self-report inventories. Therefore, some of the results could be attributed to using the same method for operationalizing both sets of variables. Finally, Regarding the Axis II personality disorders, empirical work on the association between the disorders and variables representing normal personality and occupational functioning has been scarce. Therefore, theoretical work is often heavily relied upon in explaining the relationships. Such practice seems acceptable given the exploratory nature of this study. However, increased empirical work with the personality disorders would greatly facilitate understanding in this area.

Suggestions for Future Research

Future research activities could focus on expanding the characteristics of the sample beyond those associated with college students. For example, research efforts could focus on an occupational sample in order to discern the levels of Axis II characteristics within an actual work environment. Future research activities could also focus on additional inventories and methods for measuring the constructs. For example, there are interview methodologies for measuring Axis II such as the Structured Clinical Interview for DSM-III Personality Disorders (Spitzer & Williams, 1985). In addition, future research should make use of alternative self-
report inventories for assessing Holland's typology such as the Strong Interest Inventory or the Vocational Preference Inventory.

Finally, future research could benefit from further attempts to understand the role of personality disorders in vocational choice by including other variables in the regression equation. Normal personality variables such as those assessed by the five factor model (Costa & McCrae, 1980) and situational constraints such as socioeconomic status or educational degree would help to clarify the role of personality disorders in vocational personality and vocational choice.

Summary

An exploratory investigation revealed a number of significant relationships between a measure of the eleven Axis II personality disorders and a measure of Holland's (1985) RIASEC model of vocational personality. Several patterns were apparent in the results. In keeping with previous findings, most of the relationships were negative. However, each vocational type scale was also positively associated with at least one unique Axis II scale. In addition, the pattern of relationships differed for men and women. For men, the correlations were stronger and there was more variance accounted for in the type scales by the disorder scales. Finally, the strongest relationship was found between the Enterprising scale and the Axis II scales. The results contributed to knowledge regarding the role of personality pathology in vocational interests, vocational personality, and vocational choice.
BIBLIOGRAPHY
BIBLIOGRAPHY


Costa, P.T., & McCrae, R.R. (1980). Still stable after all these years: Personality as a key to some issues in adulthood and old age. In P.B.


APPENDIX
### Appendix A: Correlations Between All Variables In the Study

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>53**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>03</td>
<td>-.02</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>-.01</td>
<td>08</td>
<td>28**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>09</td>
<td>-.04</td>
<td>06</td>
<td>22**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>06</td>
<td>-.04</td>
<td>-.06</td>
<td>04</td>
<td>47**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>-.11</td>
<td>-.10</td>
<td>-15^</td>
<td>-.07</td>
<td>-.09</td>
<td>-.03</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>18**</td>
<td>21**</td>
<td>-.02</td>
<td>-.26**</td>
<td>-.12</td>
<td>.00</td>
<td>40**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>05</td>
<td>11</td>
<td>25**</td>
<td>.04</td>
<td>-.12</td>
<td>-.08</td>
<td>41**</td>
<td>43**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>-.05</td>
<td>01</td>
<td>-.02</td>
<td>-.04</td>
<td>-.17</td>
<td>-.11</td>
<td>64**</td>
<td>41**</td>
<td>58**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>-.19**</td>
<td>-.20**</td>
<td>05</td>
<td>20**</td>
<td>11</td>
<td>.03</td>
<td>34**</td>
<td>-.13</td>
<td>25**</td>
<td>34**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>05</td>
<td>06</td>
<td>03</td>
<td>-.12</td>
<td>24**</td>
<td>10</td>
<td>34**</td>
<td>32**</td>
<td>28**</td>
<td>33**</td>
<td>24**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>-.12^</td>
<td>-.08</td>
<td>-.10</td>
<td>-.05</td>
<td>-.28</td>
<td>-.11</td>
<td>68**</td>
<td>39**</td>
<td>43**</td>
<td>69**</td>
<td>22**</td>
<td>14^</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>-.10</td>
<td>-.05</td>
<td>-.12^</td>
<td>-.12</td>
<td>-.41</td>
<td>-.21</td>
<td>43**</td>
<td>32**</td>
<td>32**</td>
<td>51**</td>
<td>02</td>
<td>-.09</td>
<td>69**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>-.05</td>
<td>04</td>
<td>-.14^</td>
<td>09</td>
<td>12^</td>
<td>21**</td>
<td>16**</td>
<td>.07</td>
<td>-.05</td>
<td>-.14</td>
<td>13^</td>
<td>12^</td>
<td>07</td>
<td>-.11</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>05</td>
<td>01</td>
<td>-.05</td>
<td>-.10</td>
<td>-.03</td>
<td>-.11</td>
<td>49**</td>
<td>32**</td>
<td>33**</td>
<td>56**</td>
<td>27**</td>
<td>41**</td>
<td>36**</td>
<td>22**</td>
<td>-.31</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>11</td>
<td>06</td>
<td>-.02</td>
<td>-.16^</td>
<td>.06</td>
<td>-.02</td>
<td>38**</td>
<td>41**</td>
<td>36**</td>
<td>51**</td>
<td>20**</td>
<td>56**</td>
<td>27**</td>
<td>11</td>
<td>-.23</td>
<td>59**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>09</td>
<td>11</td>
<td>-.04</td>
<td>-.02</td>
<td>-.02</td>
<td>-.01</td>
<td>-.17</td>
<td>.06</td>
<td>-.13</td>
<td>-.21</td>
<td>-.29</td>
<td>-.19</td>
<td>-.12</td>
<td>04</td>
<td>10</td>
<td>-.22</td>
<td>-.15</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>04</td>
<td>04</td>
<td>14^</td>
<td>03</td>
<td>-.10</td>
<td>-.11</td>
<td>12</td>
<td>16**</td>
<td>16**</td>
<td>13^</td>
<td>-.10</td>
<td>11</td>
<td>11</td>
<td>.09</td>
<td>-.11</td>
<td>14^</td>
<td>23^</td>
<td>13^</td>
<td>1</td>
</tr>
</tbody>
</table>

n = 290

^p < .05

^^p < .01

Note: decimal points deleted

**SDS variables**

1. Realistic
2. Investigative
3. Artistic
4. Social
5. Enterprising
6. Conventional

**Profile variables**

7. Paranoid
8. Schizoid
9. Schizotypal
10. Borderline
11. Histrionic
12. Narcissistic
13. Avoidant
14. Dependent
15. Compulsive
16. Passive-aggressive
17. Antisocial
18. Social Desirability
19. Infrequency
Appendix B: Reliability Analyses of Axis II Variables

<table>
<thead>
<tr>
<th>Axis II variables</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paranoid</td>
<td>.78</td>
</tr>
<tr>
<td>Schizoid</td>
<td>.73</td>
</tr>
<tr>
<td>Schizotypal</td>
<td>.64</td>
</tr>
<tr>
<td>Borderline</td>
<td>.78</td>
</tr>
<tr>
<td>Histrionic</td>
<td>.73</td>
</tr>
<tr>
<td>Narcissistic</td>
<td>.69</td>
</tr>
<tr>
<td>Avoidant</td>
<td>.78</td>
</tr>
<tr>
<td>Dependent</td>
<td>.79</td>
</tr>
<tr>
<td>Compulsive</td>
<td>.82</td>
</tr>
<tr>
<td>Passive-Aggressive</td>
<td>.68</td>
</tr>
<tr>
<td>Antisocial</td>
<td>.79</td>
</tr>
<tr>
<td>Social Desirability</td>
<td>.34</td>
</tr>
</tbody>
</table>

Infrequency              | .56   

n=290
VITA

Daniel W. Knight, Jr. was born in Ferriday, Louisiana on January 11, 1967. He attended elementary and high school at Huntington Academy and graduated from high school in May, 1985. The following September he entered Louisiana State University and in August, 1989 received the degree of Bachelor of Science in Psychology. He entered the University of Tennessee in September, 1991 and in August 1995 received a Master of Science degree in Industrial and Organizational Psychology.

He is presently enrolled at the University of Tennessee in the Ph.D. program in the College of Education with a specialization in Counseling Psychology.