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WORKING MEN AND WOMEN.

THE OHIO STATE UNIVERSITY, PH.D., 1979

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HOLLAND'S THEORY AND NON-COLLEGE
DEGREED WORKING MEN AND WOMEN

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

William Barrett Benninger, B.A., M.A.

* * * * *

The Ohio State University

1979

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A handwritten signature in dark ink, appearing to read 'W. Bruce Walsh', is written over a horizontal line.

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CHAPTER I

INTRODUCTION

An increased interest in the occupational choices of individuals in the past sixty years has led to the rapid growth and development of theories of vocational choice. There still remains, however, numerous broad areas in the major vocational theories which because of a lack of research are untouched and therefore severely limit the usefulness of the theory. Two of the larger untouched areas are the generalizability of theoretical implications to non-student populations and the role of sex in vocational behavior. These two areas encompass the broad topic of this research.

The basic purpose of theory in general is to assimilate previously unrelated empirical observations into a general statement. In vocational psychology the role of theory has, at best, been confusing for many. Practitioners have often been disappointed with the lack of relevance of psychological theory while theoretical applications to practice have often fallen short of the comprehensiveness needed by practitioners. Some, in frustration, have tried to work without systematic theory only to be confronted with as many difficulties as before (Osipow, 1973). Others contend that until we know more about cultural and economic forces the construction of a valid theory of vocational choice will be impossible (Hewer, 1963). Many theories

suffer from lack of generalizability to other than student populations (O'Brien, 1975). An equally low number of studies have compared the similarities and differences of men and women in the same occupation. Some authors break down vocational theories into groups of approaches. Roth, Hershenson, and Hilliard (1970) categorized theories of vocational development into five general areas: 1) the social psychological approach, 2) the developmental personality approach, 3) self concept identity approaches, 4) approaches emphasizing needs and values and 5) decision-making theories. Osipow (1973) presents a number of the major theories of career development. Among them, Roe's (1957) personality theory of career choice, the Ginzberg, Ginzburg, Axelrad, and Herma (1951) theory, Super's (1953) developmental self concept theory of vocational behavior, and Holland's (1973) theory of vocational behavior.

Roe's (1957) personality theory of career choice was developed from a series of investigations of the developmental backgrounds and personalities of research scientists (Roe, 1951a, 1951b, 1953). Heavily influenced by psychoanalytic theory, Roe's theory has three important components (Roe & Sielgelman, 1964). First, is her emphasis on the effects of early childhood experiences which appear to be the result of the influence of Murphy (1947). Need theory (Maslow, 1954) is a second component related to her theory of vocational choice. Finally, Roe frequently refers to the role of genetic influences on vocational decisions. Although Roe's theory of vocational choice fulfills many of the requirements of a desirable theory (Osipow, 1973) such as comprehensiveness, explicitness, and the processes of normal

and inappropriate vocational choice, her theory falls short in numerous areas. Most importantly, the theory is not supported empirically and says little about procedures which are useful in vocational counseling.

The theory developed by Ginzberg, Ginzburg, Axelrad, and Herma (1951) purports that the individual develops through a number of clearly marked stages most of which occur during adolescence. Decisions often occur as a series of compromises the individual makes between his/her wishes and the range of possibilities available. Three major stages have been identified as the Fantasy period, Tentative period and the Realistic period. The theory relies quite extensively on developmental concepts as well as emphasizing the influence that emotional factors have on career development. Additional factors which the authors identify as important features in the career development process include the child's ability to identify with suitable models at appropriate times, whether or not an individual is work-orientated or pleasure-orientated, and whether they are active or passive problem solvers. The moderate amount of research on this theory has yielded mixed results. Support has been found for the notion that boys emphasize different experiences in their vocational development as they grow older and that reality factors exert an important influence in the vocational preferences boys express (Small, 1953).

Many shortcomings are evident upon examination of this theory. Failure to differentiate clearly between occupational preference, selection, and attainment severely limits empirical validation of the theory. The theory is, as well, lacking in its providing counselors

techniques for helping vocational clients. In addition, it does not suggest corrective measures for deviant patterns of development. Finally, because the data collected on the theory was so demographically narrow, the theory's generalizability is severely limited.

Like Ginzberg's theory, Super's (1953) vocational theory relies strongly on developmental concepts. Unlike Ginzberg, however, Super also emphasized the role that the self-concept has on career selection. Super purports that the individual seeks to implement his or her self-concept by choosing a vocation which will maximize the chances of self-expression. The manner in which the individual's vocational behavior is expressed, according to Super, is dependent on the stage of development of the individual. In general, Super's theory is comprehensive and well documented. Most of the research done on the theory supports it. Both the developmental stages and the formulations about the role of the self-concept are systematic and well integrated. An additional strength of the theory is the attention given to applications to counseling on vocational and personal matters and although Super has said little about economic and social factors which may influence career decisions, the theory is becoming more specific which increases its utility in both the research and the applied areas. Finally, like most theories, Super says very little about adult vocational development, the theory's validity with working populations, and how the theory differs in respect to men and women.

Holland's (1973) theory of vocational choice is also a strong contributor to vocational research. He proposed that there are six personality types (Realistic, Investigative, Artistic, Social,

Enterprising and Conventional) and six matching vocational environments which exist in the working world. If one personality type is dominant over the others then the individual will seek an occupational environment that matches that type. The theory tells us little as to how the personality orientations of the individual are developed. It must be assumed the general notions described by other personality theorists adequately cover the explanation for their development. Holland does give a general framework for its development, however, saying that a person's personality type can be described in terms of an individual's adaptive behavior, needs, motives, self-concepts, life histories, and educational goals. The following are descriptions of the theoretical model types (Walsh, 1973):

Realistic - The Realistic type is characterized by aggressive behavior, mechanical skill, practical mindedness, physical strength, conventional masculinity, and interest in activities requiring motor coordination rather than those requiring social concerns and sensitivity. The kind of person embodying this orientation prefers to act out problems, to avoid interpersonal tasks, and to seek concrete rather than abstract problem situations.

Investigative - The Investigative persons prefer to think through rather than to act out problems. They enjoy ambiguous work tasks and evidence a need to understand by thinking through problems. They are characterized as being scientifically inclined, inventive, precise, achieving, independent, shy, and radical.

Social - Social people have social interests. They prefer teaching or therapeutic roles and are responsible, humanistic, and accepting of conventionally feminine impulses. Social people not only seek close interpersonal situations but are skilled in their interpersonal relations. These people tend to avoid intellectual problem solving, physical activity, and highly ordered activities.

Conventional - This type of person prefers structure and order in verbal, numerical, and behavioral activities. They tend to avoid ambiguous situations and problems involving interpersonal relationships, rules and regulations, high self-control, and strong identification with power and status.

Enterprising - The Enterprising people are verbally skilled, dominate, sociable, adventurous, and persuasive. They strive to acquire power and status. These people place high value on being influential in public affairs and thus prefer to be community leaders, experts in finance and business, or the like.

Artistic - The Artistic people have a high need for original and individualistic expression. They tend to be asocial, intrceptive, emotional, and more conventionally (or stereotypically) feminine than masculine. Such people dislike structure and show a limited amount of self-control. They prefer dealing with environmental problems through their artistic expression.

An individual's personality type has been operationally defined by the Vocational Preference Inventory (VPI) (1975), the Self-Directed Search (SDS) (1972), and the Holland Scales (Campbell & Holland, 1972) from the Strong Vocational Interest Blank. The VPI consists of a list of 60 occupational titles for which the individual records his/her likes or dislikes. This instrument is primarily designed to measure personality types. The rationale behind its development is based on the assumption that occupational preferences are expressions of personality. Choice depends on the person's understanding, motivation, and knowledge of that occupation. The SDS is similar to the VPI in that it was developed by Holland, is based on his theory of vocational choice, and yields a three letter summary code. Unlike the VPI, however, the SDS is a simulation of the vocational experience which

combines assessment, scoring, profiling, diagnostic formulation using the three letter code, and an occupational file. Individuals also list their occupational daydreams.

A person's personality type as measured by these instruments is a comparison between a person's attributes and those of each model type. They determine which type is resembled most. The other types a person resembles may also be determined. For example, a person might resemble the Artistic type first, then the Social type, followed by the other types in descending order. His/her total resemblance to each of the six types forms a pattern of similarity and dissimilarity--the person's personality pattern.

The environment, another important consideration in this theory, is characterized as having specific physical and social attributes. The environments in which people live are characterized by their resemblance to one or more of the model environments described by Holland. The following are descriptions of the model environments (Walsh, 1973):

Realistic - The Realistic environment is characterized by demands of explicit, physical, concrete tasks. Expected and frequent behaviors include mechanical responses, persistence, and a variety of physical movements in outdoor settings. Tasks usually call for immediate behavioral action. Therefore, reinforcement generally follows the successful completion of a task. Pressure does not exist for interpersonal skills and for close interpersonal relationships.

Investigative - The Investigative environment is characterized by tasks that require thinking responses which are not only abstract in nature but also require the use of creativity and imagination. In this environment, work involves ideas and things rather than other people. A

minimal pressure for social skills exists, therefore, relationships with others are usually superficial rather than close. Laboratory equipment is frequently used but the occupational requirements are usually not physically demanding (talking, reading, writing, and ideational learning). As might be expected, the work setting is usually indoors.

Social - The Social environment requires the ability to interpret as well as to modify human behavior. There is pressure to be interested in communication with and helping others. Work situations (such as teaching, lecturing, social work, and other forms of helping) generally demand verbal facility with people rather than with things. The work environment fosters prestige but reinforcements tend to be delayed.

Conventional - The Conventional environment is characterized by tasks that require systematic, concrete, and routine responses. Minimal physical strength is required and the activities are carried out indoors. Because work in this environment is mainly with things and materials, pressure for interpersonal skills is not high.

Enterprising - The Enterprising environment is characterized by tasks requiring verbal responses meant to influence other people. Pressure exists to assume persuasive and supervisory roles. Work situations require such behavior as directing, controlling, and planning the activities of others. The environment demands an interest in people and things. Social skills are needed because many work situations are people orientated; the environment does not call for the ability to form close relationships, however.

Artistic - In the Artistic environment tasks generally require the use of imagination as well as personal interpretation of feelings, ideas, or facts. Personal interpretations are usually evaluated against sensory or judgmental criteria. Although excellence is valued, the standards of excellence are often defined ambiguously. Work situations usually require intense involvement for long periods of time and draw upon a person's total resources. Some work situations (such as drama) involve close interpersonal relationships; other work situations (such as painting) are completed in isolation.

The model environments are defined in terms of the atmosphere created by the people who dominate a given environment. For each personality type there is a related environment. For example, Social environments are dominated by Social types, Realistic environments by Realistic types. To assess environments Astin and Holland (1961) developed the Environmental Assessment Technique (EAT). The EAT characterizes an environment by its population. The EAT form used is composed of eight variables: the Total number of students in the college, the average intelligence of the students and the six model environments previously described. This method of environment description has been found to possess moderate concurrent (Astin & Holland, 1961) and construct validity (Astin, 1963) and high test-retest reliability (Holland, 1961).

Another important issue is the notion that a person's behavior is determined by the interaction between personality and the environment. If a person's personality pattern and environmental pattern are known then we may use our knowledge of personality types and environmental models to predict and understand some of the outcomes of such pairing. Individuals whose personality type and vocational environment do not match are characterized as incongruent. Research supports the notion that individuals choose environments consistent with their personality types (Holland, 1962, 1963, 1964, 1968; Osipow, Ashby, & Wall, 1966). The pairing of individuals and environments results in predictable outcomes based on our knowledge of personality types and environments. Evidence supports some of the outcomes which include: personal and vocational stability (Elton, 1971; Holland, 1968; Holland & Nichols,

1964; Lacey, 1971; Walsh & Barrow, 1971; Walsh & Lewis, 1972; Walsh & Osipow, 1973; Walsh & Russel, 1969; Walsh, 1974), satisfaction (Brown, 1968; Holland, 1968; Walsh, O'Brien, Santa-Maria & Edmonson, 1973) and achievement (Holland, 1963; Walsh & Hanle, 1975).

Little seems to be known at this time about vocational choice as it relates to the non-college degreed worker. Few theories of vocational behavior have specifically included the non-college degreed population, and few (including Holland) have extensively researched the validity of their theories with this group of individuals. Roe and Klos (1969), in a modification of Roe's original conception of occupational classification, dealt with "low-level" jobs specifying that they were more similar to one another psychologically than are high-level jobs. Research (Meir, 1970) supports this notion.

Fishburne (1973) emphasizes the need for the use of non-college degreed workers in vocational research in his summarization of Osipow's (1968) review of the research stimulated by vocational theory. Fishburne reports approximately 68% of the studies cited by Osipow were completed using adolescent and college students. Approximately 19% of the studies were done using college graduates in the world of work. Only 1.6% of the studies used samples of non-college graduates, clearly pointing out the need for more work in this area. In addition, the extensive use of such narrow populations seriously affects the generalizability of a theory. Many vocational theories being tested only on college populations can only make inferences as to the adaptability of the theory to individuals in the world of work.

Recently, a series of studies have been done using Holland's theory and non-college degreed individuals. Fishburne and Walsh (1976) had difficulty validating Holland's theory with non-college degreed men using one of Holland's inventories, the Vocational Preference Inventory (VPI). The Self-Directed Search (Holland, 1972) was determined to discriminate effectively among male non-college degreed workers. O'Brien and Walsh (1976) determined the VPI and the SDS to be effective in discriminating among occupational groups of non-college degreed black working men. Finally, Matthews and Walsh (1978) attempted to validate Holland's theory with non-college degreed working women. As in the Fishburne and Walsh (1976) study, the SDS most effectively discriminated among the occupational groups.

One other area which is of paramount importance to the development of a sound and comprehensive theory of vocational choice is the role of sex differences in vocational behavior. To this date much of the research is conflicting.

One argument stresses that since males and females differ in terms of personality (Doherty, 1973) and since some theories of career development are based on personality (e.g., Holland, 1973), and since society has traditionally approached men much differently than women in respect to careers, it follows that males and females may require different theories of vocational choice or at least different theoretical interpretations of existing theories. One study testing this notion (Rose & Elton, 1971) using Holland's occupational categories and the Omnibus Personality Inventory indicated that the personality types of men and women of the same occupational type are different.

Other research on the characteristics of men and women in the same occupation suggests a number of differences (Johansson & Harmon, 1972). Campbell (1974) found the men and women differed across all occupations almost without exception and no occupations studied had any unique patterns of differences. He also noted that men and women in the same occupation sometimes had the same personality orientation and sometimes they had different personality orientations. Sex differences, according to Campbell, should not be ignored. Roth, Hanson, and Cole (1973), in another investigation, explored the interests of men and women in the same occupations and college majors (Hanson, 1974) and found some similarity among interest profiles when standard scores were used. In a study using Holland's three letter codes (Predinger & Hanson, 1976) the codes for a large sample of men and women in 104 occupational groups, were determined separately using the Strong-Vocational Interest Blank (SVIB), the Vocational Preference Inventory (VPI) and Project TALENT data which was converted into Holland codes. For each inventory two procedures were used to arrive at a three letter code, a raw score technique and a standard score technique which was based on same sex norms. The results of this study indicated that "Holland's raw score codes do not have the same occupational significance for males and females that Holland's principle of congruence assumes" (p. 178). Although Holland's theory is silent on the role of sex in vocational behavior (Holland, 1976) he makes clear that this does not mean that sex differences have no influence on vocational behavior. Holland also points out that because employers discriminate against both sexes and random samples of males and

females in the same occupation are difficult to get, similar codes for men and women are about the most a researcher can expect. More recently, Walsh, Horton and Gaffey (1977) explored the differences among men and women employed in traditional male occupations using two operational definitions of vocational orientation, the VPI and the SDS. This study, which defined congruence using only the first letter of the subject's Holland code, found that the VPI did not differentiate between men and women in the same occupation. On the SDS only one of the three types used did not differentiate between male and female members in the same occupation. In general, the findings suggested that women in non-traditional female occupations when compared to men in those occupations, tend not to report significantly lower mean raw scale scores. This finding does not support the sex restrictiveness of raw scores as used in the VPI and the SDS. So in looking at career development, a number of factors appear to be important at this time. First, the use of the non-college degreed subject, second, the use of the employed person and third, the use of men and women in the same field. The purpose of this study then is to compare non-college degreed working men and women in three traditionally male occupations: bus-taxi drivers, police officers and car sales persons.

CHAPTER II

REVIEW OF THE LITERATURE

A large number of research has been completed on Holland's theory of vocational choice, in all over 400 studies. This review will concentrate on six areas pertinent to employed populations. These six areas will include studies with the following samples: College and non-college degreed employed males, college and non-college degreed employed females and studies comparing employed males and females in both the college and non-college degreed areas.

College Degreed Employed Males

A number of studies of vocational development have utilized employed men in the sample. The most advantageous aspect of this strategy being the increased generalizability of the results to the working world. This does, however, limit the generalizability of results to male workers.

In 1962, Lopez explored Holland's six vocational models (Realistic, Investigative, Social, Conventional, Enterprising, and Artistic) in a work environment. He used a sample of 124 supervisors and their employees. The results of his study supported the relationship between job satisfaction and four of the vocational orientations: Realistic, Investigative, Social, and Enterprising. In another study,

using clergymen, Osipow (1970) investigated the similarity of their actual work roles to the codes they received after taking the Vocational Preference Inventory. Osipow found that the clergy studied reported jobs which emphasized tasks which had only a moderate relationship to their vocational orientation. More recently two studies, one by Lacey (1971) and the other by Gaffey and Walsh (1974), used employed adult males in testing the concurrent validity of Holland's theory. Lacey (1971), using the Vocational Preference Inventory, collected data from 230 male workers in eight different occupational environments. Using Holland's vocational orientations the occupations were classified into: Realistic-project engineers; Investigative-research chemists and computer programmers; Social-high school teachers; Conventional-actuaries; and Artistic-college English professors and music teachers. All of these college educated subjects had at least 10 years of working experience. The subjects responded to the VPI in their occupational environments. Lacey found that five of the VPI scales (Investigative, Social, Conventional, Enterprising and Artistic) successfully differentiated the eight occupational groups. Only the Realistic category proved not to hold true to theoretical prediction. In an extension of this study, Gaffey and Walsh (1974) studied the concurrent validity of Holland's theory using four different operational definitions of vocational orientation. The authors used six occupational groups which coincided with Holland's six types. Looking at the results for the two most common inventories used, the VPI and the Self-Directed Search (SDS) the findings appear to be quite similar to the Lacey (1971) report. That is, for the VPI,

all scales except for the Realistic scale successfully differentiated the occupational groups. On the SDS the Realistic, Social, Enterprising and Artistic scales successfully differentiated occupational groups.

Although Holland's theory was originally validated using samples which primarily consisted of National Merit Scholars, high school students and college freshmen (Holland, 1962, 1968, 1973), the more recent studies reviewed above provide strong support for the validity of Holland's theory with individuals in the working world.

As discussed above, these studies which tested the concurrent validity of Holland's theory using a variety of operational definitions, supported the use of the theory with the samples and instruments used. Another study which exclusively used a sample of men is Salamone (1968). This author used a sample of rehabilitation counselors to measure the correlation between their satisfaction scores and their degree of congruence. Salamone hypothesized that the more an individual's job resembles his or her personality type, the more satisfaction the counselor would report. Although Salamone found most of the VPI codes to be in the predicted direction, none of the other hypotheses were supported.

In recent years, investigators have attempted to broaden the support for Holland's theory by testing its utility using a population of non-college degreed, employed workers.

Non-College Degreed Male Workers

Fishburne and Walsh (1976) used a sample of 126 male non-college degreed workers to study the concurrent validity of Holland's theory and to study the relationships among the same named scales across the VPI and the SDS. Only occupations which had a maximum educational requirement of high school, technical or business education were used. The six occupational groups were paired with the Holland types as follows: Realistic - barbers; Investigative - electronic technicians; Artistic - photographers; Social - bartenders; Enterprising - gas station managers; and Conventional - accounting clerks. The participants ranged in age from 20 to 70 years and all had been employed in their field for a minimum of one year. The results of the study found little support for the concurrent validity of the VPI with male non-college degreed workers, with only two scales discriminating among the occupational groups. This result was inconsistent with previous findings (Lacey, 1971; Gaffey & Walsh, 1974). It suggests that the concurrent validity of the theory might vary from scale to scale and might depend on what occupation is being explored. On the SDS, four of the scales differentiated the groups in accord with Holland's theory, providing some support for the theory. One possible interpretation for the VPI findings given by the authors was that the results supported the Roe and Klos (1969) hypothesis that the distance between occupational environments diminishes as one moves from the professional to the unskilled levels of the occupational classification. In a parallel study O'Brien and Walsh (1976) studied the concurrent

validity of Holland's theory for black men who did not have a college degree and who had been employed in their occupation for at least one year. None of the subjects had completed more than two years of college. Unlike the previous study, four of the VPI scales (Realistic, Artistic, Enterprising and Conventional) identified occupational groups consistent with Holland's theoretical notions. In past studies (Lacey, 1971; Gaffey & Walsh, 1974; Fishburne & Walsh, 1976) the SDS has been more effective than the VPI in discriminating between occupational groups, especially with the employed male workers. This study is no exception. The SDS effectively discriminated between five of the six categories (Realistic, Investigative, Artistic, Enterprising and Conventional). Only the Social scale was not able to be effectively isolated. As with most of the studies in this group, this one supports the concurrent validity of Holland's theory for the occupations used. A third, by Morrison and Arnold (1974) used employed men who do not have a college degree. The authors explored the intra-group similarities and differences between a Realistic sample of 268 male workers employed in an extracting plant. The workers completed the Life History Items instrument (Glennon, Albright & Owens, 1966). Only subjects who were employed in their occupation at the plant for at least a six-month period were used. A majority of the personality and interest traits measured by the Life History Items instrument did not fall in agreement to Holland's theory. This made the Realistic group appear heterogeneous in their basic personality make-up. The results of this study should be viewed with caution, however, as the authors pointed out a number of possible faults in the study which

appeared to have contributed to the results. In a post-hoc analysis these errors were tentatively affirmed suggesting reclassification of some of the non-professional occupations. Finally, Hughes (1972) used a sample of 400 working adult males aged 25 to 55. The men were all employed by the National Guard at various educational levels. Administering the VPI, the Strong Vocational Interest Blank (SVIB) and other inventories, he categorized his subjects as types to determine what characteristics were associated with what types. For the VPI only 42% of the subjects high point code matched their vocational classification. The SVIB revealed only a 14-35% agreement using three different procedures. In addition, subjects when asked for their own personality characteristics, did not do so in accordance with Holland's theory. In general, this study did not lend much support to Holland's theory with working populations.

As with the studies reviewed, a substantial portion of the work done using Holland's theory and male subject populations supports the notion that Holland has developed a workable theory of vocational choice for males. In addition to the research done with the male population, a growing number of studies using women are being published.

College Degreed Employed Women

In one of the earliest studies using Holland's theory exclusively with a female population, Werner (1969) used the Vocational Preference Inventory and the Employed Women's Questionnaire (a measure of role choice and job satisfaction) to study 348 women who fell into one of Holland's six personality orientations. The jobs held by the women

included: production workers (Realistic), research scientists and technicians (Investigative), teachers (Social), bank employees (Conventional), professional managerial or supervisory persons (Enterprising), and commercial artists, interior decorators, and writers (Artistic). Of the women tested there was a high degree of agreement between their personality types and their chosen profession. In fact, only 45 of the women had VPI profiles incongruent with Holland's theoretical hypotheses. However, when homogeneity, consistency, congruence and role choice were analyzed individually and systematically compared to the achievement and the satisfaction of the workers, little support for any relationship was found. Werner, in another study (1969) exploring the relationship of vocational interests and job satisfaction, administered the VPI and the Hoppock Job Satisfaction Blank (Hoppock, 1935) to 110 teachers of the educable mentally retarded. The teachers had a mean age of 36.2 and a mean of 4.6 years as a teacher of the educable mentally retarded. The results of the study strongly support Holland's hypothesis about person environment interactions. The author found a significant positive relationship between high job satisfaction and the Social and Artistic Scales of the VPI (which are the two highest codes for the special education teacher). In addition, there was a significant negative relationship between high job satisfaction and the Realistic and Conventional scales of the VPI.

Two additional studies using college degreed women in the world of work are studies which add support to the concurrent validity of Holland's theory. The first, done by Horton and Walsh (1976) used the

VPI and the Self-Directed Search to define personality orientation. The sample consisted of 179 female college degreed workers from six occupations corresponding to Holland's environmental classifications. The six occupational groups were: Realistic - engineers; Investigative - physicians; Artistic - architects; Social - ministers; Enterprising - lawyers; and Conventional - certified public accountants. Four scales of the VPI (Realistic, Artistic, Social, and Conventional) successfully identified the occupational groups consistent with Holland's theoretical thinking. These results lend some support to the concurrent validity of Holland's theory for college degreed woman workers for the six different occupations used in this study. Another study testing the concurrent validity of Holland's theory for college-degreed black working women was done by Bingham and Walsh (in press). Using a sample of 93 college degreed black women, the authors administered the VPI and the SDS to women from six occupations corresponding to Holland's environmental classifications. The six occupational groups were: Realistic - engineer; Investigative - physicians; Enterprising - lawyers; Social - social workers; Artistic - English teachers; and Conventional - business teachers. All subjects had at least one year of employment in their current occupation. The results showed four scales of the VPI (Investigative, Artistic, Social, and Conventional) identified their appropriate groups. On the SDS, one scale (Artistic) did not identify its appropriate group. As with past studies of this type, this one lends some support to the concurrent validity of Holland's theory with the sample tested occupations. However, in this study, as in previous ones, particular expected patterns do not always occur

within occupational groups.

The most recent study in this category was done by Walsh, Bingham, Horton and Spokane (in press). This study compared black and white college degreed women employed in traditional male occupations. In this study the VPI and SDS were administered to 155 black and white college degreed workers employed in engineering, medicine, and law. The findings for the three VPI and SDS scales tentatively suggest that white women when compared to black women in the same occupation report very similar mean raw scores. In other words, the two groups of women in non-traditional female occupations, regardless of race tend to be in similar kinds of environments.

In addition to the studies done with college degreed working women the area of non-college degreed working women is one of importance. Unfortunately research in this area is almost nonexistent.

Non-College Degreed Working Women

The only study which seems to be published in this area at this time is one by Matthews and Walsh (1978). In this study the authors administered the VPI and the SDS to 114 women workers in occupational environments consistent with Holland's vocational environment. Only occupations with a maximum educational requirement of high school, technical, or business education were used. The six occupational groups used were: Realistic, Assemblers; Investigative, laboratory technicians; Artistic, floral designers; Social, ward attendants; Enterprising, salespersons; and Conventional, clerk typists. All subjects had at least one year experience in their occupation. The

results of this study indicated that the SDS and to a lesser extent the VPI scales tend to discriminate effectively among the occupational groups consistent with Holland's theoretical framework. On the VPI three scales (Realistic, Artistic, and Social) identified occupational groups consistent with Holland's theoretical notions. Five of the scales on the SDS were able to identify the appropriate occupational groups. The Enterprising scale was not able to identify the appropriate occupational group on the SDS. Although this one study provides some support for Holland's theory as it relates to non-college degreed working women much more research in this area is needed for further verification and extension of these notions.

A study which used women from a variety of educational levels was done by Harvey and Winfield (1973). Their attempt was to extend Holland's theory to the adult woman in general. They selected a sample of 61 women who were mixed by educational level, number of years working, marital status, and socio-economic status. All the women were enrolled in an adult testing and guidance program at the University of Connecticut. The mean age of the women was 40.7 years and most were unemployed, although they all had worked at one time or another in their lives. Each participant was administered the Vocational Preference Inventory, the Edwards Personal Preference Schedule, the Allport-Vernon-Lindzey Study of Values, the Strong Vocational Interest Blank, and The Differential Aptitude Tests. The predicted relationships were explored using a correlation analysis between scores on the VPI and selected scales of the criterion tests. Only three of the types (Investigative, Conventional, and Enterprising)

proved to correlate highly in the predicted direction. Although there were a number of significant relationships found for the Realistic, Social, and Artistic types a large number of the expected relationships did not occur. Because of the small sample generalizations should be made with caution.

College Degreed Men and Women

Although little empirical research has been completed in this area, the similarities and differences of men and women in regard to vocational counseling, career choice, vocational testing, and non-traditional job choice is becoming more and more important. Its significance is additionally heightened by the ever-increasing inter-job mobility allowed individuals of both sexes. The issue of the credibility of vocational inventories has been touched on by Johansson and Harmon (1972). They studied the problems involved in using separate forms of the Strong Vocational Interest Blank. Using males and females in 14 occupations the authors computed response percentage differences for the 229 items common to the forms of the inventory. On the average, 42% of the items used differentiated men from women in the same occupation. This data suggests that the common items on the SVIB scales for males and females in the same occupation reflect greater similarity in interest than differences between the sexes. Therefore suggesting that an ultimate goal for vocational inventories could be one form with scales that do not incorporate sex differences.

The issue which seems to stimulate the most interest, however, is that of the non-traditional career choice especially as it relates to

women. Walsh, Horton, and Gaffey (1977) studied one aspect of this issue. Using the VPI and the Self-Directed Search they investigated the differences between college degreed men and women employed in traditional male occupations. The inventories were administered to 165 males and females employed in three occupations corresponding to three of Holland's personality types: Realistic - engineering; Investigative - medicine; and Social - minister. All subjects had at least two years of experience in their current occupation and had received a minimum of a Bachelor's degree. When taking a look at the sex variable the researchers found that the Realistic, Investigative, and Social scales did not differentiate among men and women in the same occupation. On the SDS only one scale (Realistic) discriminated between males and females in the same occupation. The findings of this investigation suggest that men in traditionally male occupations when compared to women in those same occupations tend not to report higher mean raw scale scores. This finding indicates that women, even those in traditionally male occupations, hold similar attitudes and interests of the vocational orientation as the men.

Theories of career choice have, in general, primarily focused on the college level individual. Thus career choice and vocational counseling has been at best difficult and very often less than systematic by individuals choosing less than a college degree. Not until recently have some researchers devoted time to the exploration of the plight of the non-college degreed individual.

Non-College Degreed Men and Women

In one of the earlier investigations Gottfredson, Holland, and Gottfredson (1975) performed a study which has relevance to the non-college population. They recorded employment data to assign Holland codes to a large sample. The individuals fell into the Holland levels 3 to 6 (high school, technical or business training, college). In addition, codes were assigned to general census data (all educational levels) to indicate the distribution of jobs in the economy according to Holland's categories. When comparisons were made the authors found the two sets of data to be dissimilar. The results suggest that one's educational level probably has an influence on one's occupational level. A second study by Prediger and Hanson (1976) is important although only a small portion of the sample consisted of men and women who were actually employed at the time of the study. The authors collected data on 39,000 men and women pursuing 104 occupations using the SVIB, the VPI and scales which, according to the authors closely resembled the VPI scales. The authors used both Holland's raw score technique for arriving at personality orientations and a standard score technique. They found substantial and systematic differences in the Holland raw score codes of males and females pursuing the same occupations. Differences were especially found with those in non-traditional occupations. These differences were not found when standard scores of the same occupational samples were used. In contrast to this Salomone and Slaney (1978) explored Holland's theory as it relates to the non-professional worker. Using 470 male and 447

female non-professionals who had been employed from one to more than fifteen years the authors administered the VPI and a self-description check list based on Holland's personal orientation descriptions. Each of Holland's categories was represented in this study. Collecting their personal orientations as measured by the VPI and comparing this with job classification the authors found that nonprofessional workers tend to be congruent with their work environments. In addition the nonprofessional workers tended to perceive groups of adjectives as self-descriptive which were consistent with their personal orientations. Finally, in a study which sampled from both college and non-college degreed populations additional support for Holland's theory was found. Spokane and Walsh (1978) investigated the occupational level differences of working men and women employed in Enterprising environments. The findings suggest that the VPI and SDS do not discriminate between employed adults at different occupational levels. On the VPI, males and females at both levels scored highest on the Enterprising Scale. On the SDS males peaked on the Enterprising scale at both levels, however, the females peaked on the Social scale with Enterprising being the second highest. Finally, males and females in general tended to respond somewhat differently to all scales, with the males typically having higher scores on the Realistic and Enterprising scales. This study indicates that men and women in low educational level occupations are similar to those in occupations requiring college degrees.

As can be seen by the literature presented one area which is of high importance on both a theoretical and practical level and which

has not been thoroughly explored is that area involving employed, non-college degreed men and women, particularly where women are in non-traditional occupations.

Summary

To summarize, the literature covering employed men and women has been divided into the following sections: college degreed employed men; non-college degreed employed men; college degreed employed women; non-college degreed employed women; and studies which compared working men and women with college degrees and those which compared working non-college degreed men and women. The literature in each of these areas is sparse. In general, the literature supports the use of Holland's theory for the employed populations. In addition, some support has been gathered for the use of Holland's theory with females in traditionally male occupations through the few studies done in this area. The intent of this study is to explore the extension of the use of Holland's theory to non-college degreed men and women employed in traditionally male occupations.

CHAPTER III

METHODOLOGY

The major purpose of this study will be to investigate differences between non-college degreed men and women employed in traditional male occupations using the Vocational Preference Inventory and the Self-Directed Search.

Sample

The sample consisted of 103 male and female volunteer non-college degreed workers. They were secured from three occupations corresponding to three of Holland's environmental categories. The total sample was divided into six groups representing Holland's categories as follows: Realistic - Bus and Taxi drivers (17 male and 15 female), Social - Police Officers (15 male and 15 female), and Enterprising - Car Sales Agents (19 male and 22 female). These three occupations were selected from Holland's The Occupations Finder (1974), which lists jobs according to their Holland code and includes the required educational level for the job.

The occupations chosen are all rated at Level 3 indicating that high school and some college or technical training is the maximum amount of training needed. The occupations chosen are those which have traditionally employed a significantly greater number of males

than females. All subjects had at least one year of experience in their current occupation with the exception of two female police officers who reported 11 months of experience. The mean number of working years for males was 8.6 and the mean number of working years for females was 3.7. The male subjects ranged in age from 21 to 62 with a mean age of 40.8. The female subjects ranged in age from 23 to 57 with a mean age of 32.9. All subjects had an education which did not exceed two years of college.

The subjects were obtained via personal contacts and liaison persons. They were introduced to the study via a cover letter explaining the purpose of the study and an explanation of how they may participate.

Procedure

Volunteers of the study were requested to respond to a biographical data sheet, the Vocational Preference Inventory and the Self-Directed Search with the permission of their employers. No direct measure of the working environments were attempted because the subjects were drawn from a variety of areas, offices and occupations.

Instruments

Each participant was administered a biographical data sheet which collected demographic data on each participant. Information on the form provided a check on subject limitations of age, education, job title, and amount of time in current occupation. Also included was a measure of job satisfaction and a question pertaining to method of

selection of the current occupation.

The Vocational Preference Inventory (VPI) is a personality and interest inventory which is composed of 160 occupational titles. An individual responds by indicating which occupations s/he likes and dislikes. The VPI yields 11 scores: Realistic, Investigative, Social, Conventional, Enterprising, Artistic, Self-Control, Masculinity, Status Infrequency, and Acquiescence. Only scales one through six (the personality types) will be used in this study. The three highest personality type scores ranked in order result in a summary code. For example, the summary code REA would mean that this person most resembled the Realistic type (highest total score), secondly the Enterprising type (second highest total score), and thirdly the Artistic type.

Reliability coefficients (Kuder-Richardson 20) (Cronbach, 1960) range from 0.57 to 0.89 for 6,289 male college freshmen and from 0.50 to 0.89 for 6,143 females (Holland, 1965). The inventory shows evidence of having construct and predictive validity (Holland, 1962, 1968, 1975).

Construct and predictive validity for the VPI scales are weakly to moderately related to similar scales on personality variables and are described as having moderate and clearly defined relationships to other inventories. In studies of vocational aspiration the VPI has been found to be an accurate predictor of choice of major field and occupation over one- and two-year intervals for both average and high aptitude students (Holland & Lutz, 1968; Holland, 1962).

The Self-Directed Search, a self-administered vocational counseling tool (Holland, 1971a, 1971b, 1972), is a simulation of the

vocational experience. It combines assessment, scoring, profiling, and diagnostic formulations using the summary code and an occupational file. An extension of the VPI, the SDS is the result of Holland's exploration into the various correlates of the personal orientations. The individual responds to separate sections for Activities, Competencies, Occupations, and Self-Ratings, which are combined in the Summary section to indicate the person's resemblance to each of the personality types. The Kuder-Richardson 20 internal consistency coefficients for Activities, Competencies, and Occupational Scales range from .53 to .85 for 366 women and from .63 to .88 for 358 men. Test-retest coefficients have been higher for college freshmen than for high school students. O'Connell and Sedlacek (197) and Zener and Schneulle (1972) indicate that SDS summary codes are reasonably stable for both males and females.

Hypotheses and Statistical Tests

The hypotheses are as follows:

- 1) There are significant differences in the mean raw scores for males and females.
- 2) There are significant differences in mean raw scores for the three occupational groups (bus-taxi drivers, car sales agents, and police officers).
- 3) There are no differences between the scores for the male and female occupational groups.

These hypotheses will be tested on three scales (Realistic, Enterprising, and Social) for the VPI and the SDS. All of the

hypotheses will be tested across all six scales for the two inventories using a multivariate analysis of variance. This procedure will include a univariate analysis for each of the six scales. Any significant univariate F tests will be examined by means of the Tukey (b) procedure (Winer, 1971) in order to identify specific group differences.

CHAPTER IV

Results and Discussion

This study investigated three hypotheses relative to the similarities and differences between non-college degreed men and women employed in traditional male occupations using the Vocational Preference Inventory and the Self-Directed Search. The first hypothesis investigated the relationships between the mean raw score responses of the men and the women in all the occupations surveyed on the VPI and the SDS. The second hypothesis explored the differences in the mean raw scores for the three occupational groups (bus-taxi drivers, police officers, car sales persons). The third hypothesis examined the differences between the scores for the male and female occupational groups.

To facilitate the reporting of the findings this chapter will be divided into five sections. The first section will contain the results on scale discrimination across males and females. The second will present the results on scale discrimination among occupational groups. The third will examine interaction effects. The fourth section will be devoted to the secondary analysis. The last section will summarize the highest mean scores for each occupational group by sex across the two instruments.

Scale Discrimination Across Males and Females

The means, standard deviations, and univariate tests of significance are shown in Tables 1 and 2 respectively. For the first hypothesis, the multivariate analysis of variance for the main effect of sex across the six scales for the two inventories was significant, indicating sex differences across the scales ($F = 11.528$, $p < .001$). This result supports the first hypothesis. In the univariate analysis (see Table 2) three of the six scales were significant. On the SDS the Realistic scale ($p < .001$) and the Social scale ($p < .001$) were found to discriminate between male and female groups. For the VPI the Realistic scale ($p < .001$) was found to be significant.

Scale Discrimination Across Occupational Groups

The results of the multivariate analysis of variance ($F = 10.43$, $p < .001$) for the main effect of groups across the six scales for the two inventories was significant. This result tends to support the second hypothesis, indicating that there were some basic group differences across the six scales. In the univariate analysis (see Table 2) four of the six scales were significant. On the SDS the Social scale ($p < .002$) and the Enterprising scale ($p < .001$) were found to effectively discriminate among the occupational groups. The Realistic scale was not found to be significant.

Table 1

Means and Standard Deviations for the VPI Vocational Scales
and the SDS Summary Scales

		Bus-Taxi Drivers				Police Officers				Car Sales			
		Male (N=17)		Female (N=15)		Male (N=15)		Female (N=15)		Male (N=19)		Female (N=22)	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Realistic	VPI	6.94	3.94	2.07	2.02	4.47	3.98	0.93	1.16	4.37	3.47	2.27	3.22
	SDS	29.18	11.45	13.73	5.80	27.27	13.08	12.07	7.49	27.79	10.04	13.50	11.18
Social	VPI	2.53	3.39	2.47	3.04	3.07	3.51	5.53	3.72	3.84	3.64	4.82	3.36
	SDS	23.82	7.66	28.47	8.19	27.60	7.43	35.46	7.57	30.84	5.67	32.77	6.25
Enterprising	VPI	3.23	3.54	2.86	3.48	3.87	3.60	3.40	3.11	8.74	2.84	8.14	2.53
	SDS	20.29	7.88	19.93	8.98	26.40	8.07	26.80	5.97	39.68	5.64	35.68	7.26

Table 2

Univariate Tests of Significance for the VPI and SDS

Variable	Sex (A)		Groups (B)		S X G (AB)	
	F	p less than	F	p less than	F	p less than
<u>VPI</u>						
Realistic	29.907	0.001	2.719	0.071	1.719	0.185
Social	2.955	0.089	2.928	0.058	1.046	0.355
Enterprising	0.125	0.724	32.344	0.001	0.012	0.988
<u>SDS</u>						
Realistic	54.748	0.001	0.241	0.787	0.032	0.968
Social	11.652	0.001	6.648	0.002	1.523	0.223
Enterprising	0.260	0.611	53.318	0.001	0.940	0.394

Interaction Effect

The multivariate test for the interaction effect (hypothesis 3) was not significant ($F = 0.94$, $p > .05$). Furthermore, no significant differences were found in the univariate analysis (see Table 2).

In summary all hypotheses were tested across the six scales for the two inventories using multivariate analysis of variance for unequal N's. This procedure included a univariate analysis of each scale, for a total of six.

The Secondary Analysis

In order to identify specific group differences the data were submitted to multiple comparisons through the use of the Tukey (b) Test (Winer, 1971) (see Table 3).

In the secondary analysis of the VPI, significant group differences were found on the Realistic and Enterprising scales. No significant group differences were found on the Social scale. On the Realistic scale the male bus-taxi driver group had the highest mean score and this group was significantly differentiated from the female car sales ($p < .01$), female bus-taxi ($p < .01$) and female police officer ($p < .01$) groups. The male police officer group ranked second and their group was significantly differentiated from the female police officer group ($p < .05$). The male car sales group ranked third and their group was significantly differentiated from the female police officers group ($p < .05$). The female bus-taxi driver group ranked fifth. On the Investigative scale the males in car sales had the

Table 3

Tukey (b) Analyses for Significant VPI and SDS Scales

Scales	VPI		SDS	
	p < .05	p < .01	p < .05	p < .01
Realistic	MBTD-FCSA	MBTD-FCSA	MCSA-FCSA	MCSA-FCSA
	MBTD-FBTD	MBTD-FBTD	MCSA-FPO	MCSA-FPO
	MBTD-FPO	MBTD-FPO	MCSA-FBTD	MCSA-FBTD
	MPO -FPO		MPO -FCSA	MPO -FCSA
	MCSA-FPO		MPO -FPO	MPO -FPO
			MPO -FBTD	MPO -FBTD
			MBTD-FCSA	MBTD-FCSA
			MBTD-FPO	MBTD-FPO
			MBTD-FBTD	MBTD-FBTD
Enterprising	MCSA-MPO	MCSA-MPO	MCSA-MPO	MCSA-MPO
	MCSA-FPO	MCSA-FPO	MCSA-FPO	MCSA-FPO
	MCSA-MBTD	MCSA-MBTD	MCSA-MBTD	MCSA-MBTD
	MCSA-FBTD	MCSA-FBTD	MCSA-FBTD	MCSA-FBTD
	FCSA-MPO	FCSA-MPO	FCSA-MPO	FCSA-MPO
	FCSA-FPO	FCSA-FPO	FCSA-FPO	FCSA-FPO
	FCSA-MBTD	FCSA-MBTD	FCSA-MBTD	FCSA-MBTD
	FCSA-FBTD	FCSA-FBTD	FCSA-FBTD	FCSA-FBTD
Social			MCSA-MBTD	FCSA-MBTD
			FCSA-MBTD	FPO -MBTD
			FPO -MPO	
			FPO -MBTD	

Note. MCSA = Male Car Sales Agents; FCSA = Female Car Sales Agents; MPO = Male Police Officers;
 FPO = Female Police Officers; MBTD = Male Bus-Taxi Drivers; FBTD = Female Bus-Taxi Drivers

highest mean score and the female car sales group ranked second. Both the male and female car sales groups were significantly differentiated from the other four groups ($p < .01$). The Social scale produced no significant group differences. The female police officers had the highest mean score on this scale.

In the secondary analysis of the SDS, significant group differences were found on the Realistic, Social and Enterprising scales. On the Realistic scale the male bus-taxi driver group had the highest mean score and this group was significantly differentiated from the female car sales group ($p < .01$), female police officers ($p < .01$), and the female bus-taxi drivers ($p < .01$). The male car sales group had the second highest mean score and was found to be significantly differentiated from the female car sales group ($p < .01$), the female police officers ($p < .01$), and the female bus-taxi drivers. Finally the male police officers had the third highest mean score. They were significantly differentiated from the female car sales group ($p < .01$), the female police officers and the female bus-taxi drivers ($p < .01$). On the Social scale the female police officers had the highest mean score. This group was significantly differentiated from the male bus-taxi drivers ($p < .01$) and the male police officers ($p < .05$). The female car sales group had the second highest mean score and was significantly differentiated from the male bus-taxi drivers ($p < .05$). The male car salesmen had the third highest mean score. They were significantly differentiated from the male bus-taxi drivers ($p < .05$). The male police officers group ranked fifth on the Social scale. On the Enterprising scale the male car salesmen group ranked first

followed by the female car sales group. Both of these groups were significantly differentiated ($p < .01$) from the other four groups.

Discussion

This study was designed to compare non-college degreed working men and women in three traditionally male occupations: bus-taxi drivers, police officers and car sales persons. Three hypotheses were tested using Holland's Vocational Preference Inventory and the Self-Directed Search. These two instruments were designed by Holland and his associates to operationalize his theory of vocational choice. Although Holland's theory and these inventories have amassed considerable support, few investigations have studied vocational choice as it relates to the non-college degreed worker. In addition, little is known about the similarities and differences between men and women in the same occupation. Therefore, the VPI and the SDS were administered to a sample of non-college degreed men and women employed in occupations which traditionally employed more males than females. All of the respondents were reasonably well established in an occupational environment representative of three of Holland's model vocational environments. These environments with their corresponding occupations were Realistic - bus and taxi drivers, Social - police officers, and Enterprising - car sales persons.

As indicated, the major concern of this study was to explore differences among men and women in traditional male occupations (bus-taxi drivers, police officers, and car sales people). In studying the sex variable, the findings revealed that the Realistic scale of the

VPI and the Realistic and Social scales of the SDS successfully differentiated the male and female occupational groups. More specifically, the Realistic scale of the VPI discriminated among the male and female bus-taxi drivers. The male bus-taxi drivers had the highest mean score, the female bus-taxi drivers ranked fifth. However, the VPI Social and Enterprising scales did not differentiate among men and women in the appropriate occupation. The Social scale did not discriminate among the male and female police officers and the Enterprising scale did not discriminate among the male and female car sales people. Thus, the results for the VPI scales show that only the Realistic scale effectively discriminated between men and women in the same occupation.

On the SDS, two scales (Realistic and Social) differentiated between the male and female members of the same occupation. The Realistic Scale discriminated between male and female bus-taxi drivers. The male bus-taxi drivers had the highest mean raw score, the female bus-taxi drivers ranked fourth. The Social scale discriminated between the male police officers and the female police officers, however, in this case the female police officers had the highest mean raw score and the males ranked fifth. The Enterprising scale did not discriminate between male and female car sales persons. The males had the highest mean raw score and the females ranked second. Again, the findings on the SDS scales show that the Realistic scale effectively discriminated among men and women in the same occupation. The Social scale effectively discriminated among men and women in the same occupation as well, however, the women scored higher than the men.

In general, the findings for the three VPI and SDS scales and for these six occupational groups are mixed. For the Social and Enterprising scales the results tentatively suggest that men in traditionally male occupations when compared to women in those same occupations tend not to report significantly higher mean raw scale scores. Or, stated differently, the findings suggest that for these Holland categories women in non-traditional female occupations when compared to men in those occupations tend not to report significantly lower mean raw scores as used in the VPI and the SDS. The mean raw scores obtained by men and women on the VPI and the SDS in these Holland categories seem to be more similar than different, suggesting to some extent sex-balance within a given scale. On the Realistic scale, however, the results tentatively suggest that men in the occupation studied when compared to women in that same occupation tend to report significantly higher mean raw scale scores. In other words, women in this non-traditional female occupation when compared to men in the occupation tend to report significantly lower mean raw scores on the Realistic scale of the VPI and the SDS.

There are a number of possible explanations for the mixed findings reported here. An important difference reported by the studies participants was that between the mean number of working years of the males as compared to the females. The males reported their mean number of working years to be 8.6 while the females reported an average of only 3.7 years of relevant work experience. Because women have spent less time than the men in their working environment they may not have been as influenced by the characteristics of the environment

as the men. Stated differently, since the women have not been in the occupations as long as the men they probably have not been as influenced by the socialization process which occurs within the occupational environment.

An additional significant factor, particularly relevant to the police officers studied, is the apparent overrepresentation of the women in the Social category. In this study the women police officers scored higher than the men on the social scale, while the men were under represented in the number of high scores they achieved on the social scale of both instruments.

The low satisfaction scores reported by the bus-taxi drivers tend to suggest that either little confidence may be placed in the accuracy of the choices of those in the field or (for the congruent individuals) that Holland's instruments vary in reliability and validity depending on the particular occupational groups used.

Finally, the degree to which it is necessary for the women to incorporate the major characteristics of the occupations in order to survive in that occupation may influence the personality types found in a given occupation. For example, since car sales agents are paid on a commission basis and Enterprising type activities must be mastered to remain productive in that occupation it may be much more likely that women in that field are found to be congruent than the women in a field (such as bus or taxi driving) where only a minimal level of performance in the primary occupational characteristic (in this case Realistic) is needed.

Intra-Occupational Analysis

In his theory, Holland suggests that people who work in a given occupation should score higher in that occupation (scale) than on any other. The results on the VPI for the three occupations studied across men and women show that most of the occupational groups had their highest mean score on the appropriate scale, consistent with Holland's predictions (see Table 4). The male bus-taxi drivers (Realistic) scored higher on the Realistic scale than they did on any other vocational scale of the VPI. The female bus-taxi drivers, however, reported their fourth highest mean score on the Realistic scale. The female police officers (Social) scored higher on the Social scale than they did on any other scale. The male police officers reported their third highest mean score on the Social scale. Car sales agents (Enterprising) (men and women) scored higher on the Enterprising scale than on any other scale.

On the SDS the male bus-taxi drivers peaked on the Realistic scale. The females reported their sixth highest mean score on the Realistic scale. The police officers (both men and women) had their highest mean score on the Social scale. Both the men and the women car sales agents peaked on the Enterprising scale.

The three letter codes for the sample groups (on the VPI and the SDS) determined by a rank ordering of the three highest mean scores are as follows: male bus-taxi drivers RCE (VPI) and RSE (SDS), female bus-taxi drivers AES (VPI) and SAC (SDS), male police officers RES and SRE, female police officers SAE and SEA, male car sales agents ERC and

ESR, and female car sales agents ESA and ESC. These codes suggest more similarities than differences among males and females in the same traditional male occupation.

Table 4
Three Letter Codes for Each Occupational Group
by Sex Across the VPI and the SDS

Scale	VPI		SDS	
	Male	Female	Male	Female
Bus-taxi drivers (RCS-BUS, RSE-Taxi)	RCE	AES	RSE	SAC
Police Officers (SRE)	RES	SAE	SRE	SEA
Car Sales Agents (ESR)	ERC	ESA	ESR	ESC

Note. R = Realistic, I = Investigative, S = Social,
C = Conventional, E = Enterprising, A = Artistic

CHAPTER V

Summary, Conclusions, and Limitations

The main concern of this study was to investigate differences between non-college degreed men and women employed in traditional male occupations using the Vocational Preference Inventory (VPI) and the Self-Directed Search (SDS). The VPI and the SDS were administered to 103 male and female non-college degreed workers in three occupations (bus and taxi driving, police officer, car sales) corresponding to three of Holland's environmental categories (Realistic, Social, Enterprising). All the workers except for two female police officers had at least one year of experience. The educational level of all of the subjects did not exceed two years of college.

A multivariate analysis of variance across the six scales of both instruments was used to explore the individual differences. The Tukey (b) was used to further specify group differences.

Major Findings and Conclusions

Several of the more significant findings and conclusions from this study are reported below.

(1) The Social and Enterprising scales on the VPI did not discriminate between the males and females in their respective occupations (police officer, car sales agent).

(2) The Realistic scale of the VPI did discriminate between the male and the female bus-taxi drivers. The male group scored significantly higher on this scale.

(3) The Enterprising scale of the SDS did not discriminate between the males and females in car sales.

(4) The Social scale on the SDS did discriminate between the male and the female police officers, however not in the predicted direction. The female police officers scored significantly higher than the males.

(5) The Realistic scale on the SDS did discriminate between the male and female bus-taxi drivers. The males scored significantly higher than the females.

(6) In the intra-occupational analysis summarizing the data by three letter Holland code only three of the twelve occupational groups failed to achieve the appropriate first letter code. The female bus-taxi drivers did not obtain the appropriate first letter code (Realistic) on the VPI or the SDS. Also the male police officers failed to obtain the appropriate first letter code (Social) on the VPI.

(7) In general, the results are mixed. On the Social and Enterprising scales the results tentatively suggest that women in non-traditional female occupations when compared to men in those occupations tend not to report significantly lower mean raw scores as reported by the VPI and the SDS. The Realistic scale does not warrant this conclusion.

Limitations

There are a number of limitations with this study which suggest any generalizations should be made with caution.

First the sample size is small. The small sample size is a result of these traditionally male dominated occupations being relatively new to women, therefore, limiting the population from which sampling can be done. Generalizations to populations differing from the sample should be made with caution.

Also because the sample was obtained on a strictly voluntary basis the characteristics of those who volunteer for such a survey may bias the results (e.g., perhaps Social types will be more willing to respond than Realistic types).

Summary

Generally, the results of this study, although mixed, imply that the Vocational Preference Inventory and the Self-Directed Search do not differentiate males and females in some of the occupations studied. In other words the findings, based on the results of this study and past research indicate females in traditional male occupations don't consistently score lower than males in the same occupations on the scales of the VPI and the SDS.

APPENDICES A - C

Appendix A

Dear Participant:

I would like to thank you for participating in this research project. As you may know, today there are many persons involved in the task of helping others obtain employment in occupations which will be rewarding and satisfactory. The recent trend of both men and women entering occupations which are non-traditional for their sex has made this task more difficult than ever before. This research is designed to help those school guidance counselors and employment agencies who advise individuals who are in the process of choosing a job. Job counselors may provide more accurate and helpful advice by understanding more about the similarities and differences, likes and dislikes of men and women in the same occupations.

Your participation in this research is extremely important. Your cooperation in completing the attached instruments will help provide needed answers about men and women employed in the same occupation. I appreciate your help.

William Benninger
William Benninger

Appendix B
Vocational Survey - Biographical Questionnaire

1. Please give the title of your present job (be specific): _____

2. Please describe your job briefly: _____

3. Length, in years, of employment in present job: _____
4. Last school grade you completed (please place an X on the appropriate line):
_____ 1-6	_____ Some college but less than <u>one</u> year
_____ 7-9	_____ 1-2 years of college
_____ 10-12	_____ 3-4 years of college

If you attended college, please give the name of the college: _____

5. Total length of employment in your present occupation (if you have changed jobs but all jobs have been the same but for different employers, count that as the total time). (Place an X on the appropriate line):
_____ Less than 1 year	_____ 4 years
_____ 1 year	_____ 5 years
_____ 2 years	_____ 6-10 years
_____ 3 years	_____ More than 10 years
6. Employment, for a period of six months or more, in an occupation(s) other than your present occupation (place an X on the appropriate line):
- _____ I have never been employed in an occupation other than the one in which I am now employed.
_____ 1 other occupation	_____ 3 other occupations
_____ 2 other occupations	_____ More than 3 others

If you have been employed in another occupation, please list the last occupation you were employed in prior to the occupation you are presently in (give specific job title): _____

7. How did you select your current occupation (place an X by each appropriate answer):

☐ I had planned on going into this occupation when I was still in school
☐ It was by chance that I am in this occupation
☐ I considered other occupations before selecting the one I am in now
☐ Other (please describe) _____

8. In comparison with other people, how satisfied are you with your job?
(Place an X on the appropriate line):

☐ Not satisfied (My job is much poorer than I would like it to be)
☐ Only slightly satisfied (My job is not quite what I would like it to be)
☐ Satisfied (My job is what I would like it to be)
☐ Very satisfied (My job is even better than I expected it to be)
☐ Extremely satisfied (My job is much better than I hoped it could be)

9. At the present time (place an X on the appropriate line):

☐ I am thinking about entering another occupation.
☐ I do not know if I will stay in this occupation but plan to give it a few more years before making a decision to change.
☐ I expect to stay in this occupation unless something better comes up.
☐ I will remain in this occupation until I retire.

10. Town or city and State where you grew up (went to grade school and/or high school): _____

11. Population size of that town or city (place an X on the appropriate line):

☐ under 5,000	☐ 25,000 - 50,000
☐ 5,000 - 10,000	☐ 50,000 - 100,000
☐ 10,000 - 25,000	☐ over 100,000

12. Estimate (roughly) your parents income (while you were growing up)

13. Your age _____

14. Your sex ☐ Male ☐ Female

THE OHIO STATE UNIVERSITY
January 1979

Appendix C

Dear Police Officer:

I am a graduate student in psychology, currently working on my dissertation research for my Ph.D. I am interested in the similarities and differences between men and women employed in jobs which have traditionally been held only by males. I have chosen to survey members of the police department because they represent an important segment of society and because it is an occupation which has begun to employ more women in recent years.

I am interested in your response to the enclosed questionnaire. In order for my study to be valid, I need a representative sample. Your response is necessary for the success of this study.

You can rest assured that all information you provide will be treated as strictly confidential. No individual responses will be identified in any reporting of the data obtained. You will not be identified in any manner by returning the questionnaire.

For your convenience, I have included a postage paid envelope to use in returning the questionnaire. Thank you for participating in this project. I very much appreciate your help.

NOTE: This research has been approved by Major Joseph thru Chief Burden.

Sincerely,

A handwritten signature in cursive script that reads "William Benninger".

William Benninger

IMPORTANT: Return completed questionnaire before February 6

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