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AN INVESTIGATION OF FACTORS WHICH INFLUENCE
THE VOCATIONAL CLASSIFICATION OF CAREER
ORIENTED AND HOME ORIENTED WOMEN.

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AN INVESTIGATION OF FACTORS WHICH INFLUENCE
THE VOCATIONAL CLASSIFICATION OF CAREER
ORIENTED AND HOME ORIENTED 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
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* * * * *

The Ohio State University
1971

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CHAPTER I

INTRODUCTION

This is the decade of the women's liberation movement. As women become more concerned about their life styles, motives and feelings, the inadequacy of psychological knowledge of women becomes increasingly apparent. Psychology has seldom been interested in women as a separate group. When women have been treated separately, the theorizing and/or research has been either inadequate or confounded by cultural factors. Consequently those areas of psychology which most directly touch women's lives i.e. personality theory, career planning and testing, are based upon information of questionable validity.

Because research on the psychology of women is insufficient, several questions with wide implications have not been answered. The questions include whether women are psychologically different from men and if so, in what ways. Secondly, are differences inherent or are differences determined by cultural expectations. Thirdly, are the differences observed in the degree of "femininity" truly different degrees of a trait or are the observed differences due to other personality factors not related to sex e.g. conformity to role demands. Fourth, is femininity a single construct or are there several forms or styles of femininity. That is to say, are career women and housewives variations on femininity rather than
differences in degree of femininity.

In order to answer some of these questions, personality theories especially as they apply to women, direct measures of masculinity-femininity and statistical methods used to investigate feminine variables will be discussed. The current inadequacies of career and educational planning for women will also be discussed as specific examples of psychology's failure to meet women's needs.

**Personality Theory**

Of the major personality theories, only three deal with women as a separate group. These are the theories of Freud, Adler and Horney.

**Freudian Theory**  Freud believed that women viewed themselves as inferior because as young children they observed that they lacked the male sex organ. The girl's observation, according to Freud, led to "self-mortification" at being "obviously physically inferior." Consequently, girls developed intense envy of males (penis envy) which later generalized to a personality characteristic of women. The realization of physical inferiority generalized to a belief of personal inferiority or self contempt. Girls, then, habitually seek punishment and humiliation (introceptive hostility) to alleviate their feelings of self contempt. For Freud, the major dynamics of femininity are envy and masochism. These dynamics are the primary driving forces of not only pathological women but normal women as well.
He believed that the desire for a career or any other striving activity outside the home could be fully explained as a sublimation of penis envy and a manifestation of masochism and only with great hesitation would he credit women with human qualities other than sexual function (Freud, 1933).

Several factors which affected both Freud's beliefs and theorizing about women should be noted. First, Freudian theory is largely based upon clinical observation. Freud assumed that similar dynamics operated for both normal and pathological persons. Since Freud largely generalized from abnormal to normal it is very difficult to separate dynamics unique to the abnormal from those of normals.

Freud also held as self-evident that male sex organs were both perceived and, in fact, superior. If one examines both the general culture of his time and the religious beliefs of his Jewish subculture, it is easily seen why he could have made such an assumption (Grollman, 1965). However, Freud did not present his theory of femininity as an explanation of women's behavior in nineteenth century eastern Europe but rather as an explanation of the driving force in all women irrespective of time and culture. If either or both of his assumptions of superiority of male sexuality or female masochism do not stand then his entire theory of feminine psychology does not stand. Recent research by Masters and Johnson (1966) demonstrated that in the mature female, if orgasmic potential is used as a measure of sexual adequacy, then the female is in fact superior physio-
logically.

Review of the literature reveals no study which adequately supported Freud's contention that little girls would rather be little boys because boys possess better sexual equipment. The Freudian counter argument would be that girls give other reasons for wishing to be little boys because the "true" reason is repressed. This argument is circular and cannot be demonstrated by research.

The above discussion has shown the questionable validity of the Freudian theory of the psychology of women. Freudian thought about women fails to answer several other questions. For example, if most women are masochistic is it abnormal for a woman not to be intropunitive? Why are some women more self punishing than others? If women are normally pathological what is a healthy woman? Until such questions are answered it is difficult to determine the degree to which Freudian theory is applicable to women.

Alfred Adler's Theory In 1911 Alfred Adler broke with the Vienna Psychoanalytic Society because he disagreed with Freud's view of psychosexual development. He believed that psychological development was affected more by the culture than did Freud. Adler's early writings attributed the major life force to a will to power. From this concept the concepts of masculine protest and striving for power evolved. Early in his development of these concepts, he attributed masculine protest as a major characteristic of women. According to Adler one of the major dynamics
of women is struggle against domination by the stronger male. Men are driven by striving to greater power. At this time Adler equated femininity with femaleness and masculinity was equated with maleness. Later Adler developed a construct similar to Freud's concept of bisexuality. Adler observed that both men and women possessed a mixture of strengths and weaknesses. Retaining his original concept of defining weakness as feminine and strength as masculine he began to discuss the feminine aspect of men and the masculine elements in women. Masculine protest and striving for power now applied to both sexes. Each sex was seen as possessing some degree of masculinity and femininity (Adler, 1927).

It may be seen that these concepts began as an explanation of male-female difference but were altered into a more inclusive construct system pertaining to both sexes. Therefore, by the time Adler had fully developed his theory men and women were no longer treated as separate groups and hence his contribution to the psychology of women is minimal.

The Theory of Karen Horney Karen Horney, one of the few non-orthodox women personality theorists, dealt extensively with the psychology of women. She particularly objected to Freud's concept of penis envy. She believed that feminine psychology was based upon a lack of confidence and an over emphasis on the love relationship and had little to do with the anatomy of a woman's sex organs (Horney, 1939). She observed female behavior similar to that which led Freud to conclude that women were masochistic. However, she reinterpreted the meaning of the term masochism
from the Freudian concept to a desire to be punished, humiliated or to suffer to the concept of a desire to be dominated. Horney thought that masochism functioned as a bribe for love. She attributed the widespread presence of masochism to certain cultural conditions and role definitions (Horney, 1939).

Horney's theory appears to be most adequately developed of aforementioned theories. It is based upon observable behavior and cultural observations which may be seen widely in current attitudes. This theory fails to answer several questions. If masochism is a cultural artifact, then why are some women more masochistic than others? To what degree do different antecedent conditions to masochism e.g. sibling rivalry, poor mother identification, cultural expectations and economic dependency, produce different degrees of masochism? If most women are masochistic can it be called pathological? If the basic dynamic of feminine psychology is largely culturally determined, what is the effect of rapidly changing cultural expectations for women.

The previous discussion has shown that few personality theorists have dealt with women as a separate group. Those who have attempted to do so have failed to a) demonstrate innate psychological differences between men and women and/or b) sufficiently quantify cultural antecedents of woman's behavior. The result has been that no personality theory adequately applies to women of the 1960's and 1970's. Since personality theories have failed to demonstrate innate male-female psychological differences it may
be that the observed differences are entirely culturally determined by differential treatment of the sexes. This position is supported by anthropological research. Meade (1949) observed that the culturally defined role of women varied immensely across cultures. If psychological sex differences are imposed by the culture, then statistical rather than theoretical methods are more appropriate tools of investigation in this area.

Attempts to measure male and female differences will be discussed prior to an analysis of more subtle statistical methods of predicting women's behavior.

**Masculinity-Femininity Scales**

Interest in the measurement of masculinity vs femininity appears to have its historical beginnings in the 1930's as an outgrowth of two areas of study; individual differences as represented by Terman and Miles' (1936) studies of gifted children and the anthropological studies of cultural differences in temperament (Meade, 1949). A major goal of psychology in the 1930's was to quantify as many personality variables as possible including degree of intelligence, aptitude, attitude interests, values, and sex differences.

As an attempt to quantify masculine and feminine temperament, Terman and Miles (1936) conducted the most definitive early studies. They developed a lengthy test which included general information and word and
picture association tests. The subjects were given a choice of four pre-determined responses i.e. multiple choice format. Johnson, Thomas, and Frecke (1960), Crandel (1967), Zajon (1968), and Dorfman (1969) have demonstrated that in the multiple choice format the most likely response is that to which the subject has been most often exposed. If aforementioned findings are sound then the Terman-Miles M-F test appears to be extremely confounded by differential frequency of exposure to possible forced choice alternatives and the test is largely a measure of exposure to the masculine or feminine environment rather than a trait or temperament measure.

Since the Terman-Miles test, more statistically sophisticated M-F measures have been developed. These include the M-F scales of tests such as the Minnesota Multiphasic Personality Inventory (MMPI), the Strong Vocational Interest Bland (SVIB), California Psychological Inventory, Guilford-Martin Attitude Survey. These M-F scales are constructed by the method of selecting those items from the entire test which typically elicit different responses from men and women. Items were selected on the basis of their power to discriminate between the two sexes, irrespective of content. Although more subtle than the method used by Terman and Miles, this procedure is still subject to statistical problems.

The assumption is made that the distribution of masculine and femininity is primarily bimodal. For such an assumption to hold, each group must be more homogeneous with itself than with the other group, i.e. women must respond more like other women than like men. Recent studies (Schis-
sel, 1968; Rand, 1968; White, 1959) demonstrate that professional women or career oriented girls tend to receive "masculine" profiles on M-F tests. This finding has generated some discussion concerning the pathology of career women (White 1959). An equally valid argument might be that career oriented women are discriminated against by M-F tests because of the method of test construction. Since it has been demonstrated that career oriented women respond more like men than like home oriented women and since items are selected to discriminate those who respond like men from those who don't, it is very likely that housewives' responses are greatly over represented in the original samples of the M-F tests. The current M-F tests rather than being tests of some masculine or feminine quality may simply be a measure of conformity to the "housewife standard." If this is true, then the data obtained by this method about nonhome oriented women is distorted and may lead to grossly misleading interpretations.

A second statistical problem arises from the direct measurement of the M-F variables; the lack of significant correlation between the M-F scales of the most commonly used inventories. The correlation between the M-F scales of the MMPI, the SVIB and the Guilford-Zimmerman Attitude Survey are low or nonsignificant (Buros 1953; Barrows and Zuckerman, 1960). Since correlations are of such low magnitude (about .30) of the correlation between M-F measures it is difficult to interpret the meaning of M-F scores.

It may be seen from the discussion above that currently used M-F
scales are not only fraught with data analysis difficulties but may yield distorted information. If distortions do occur, their degree and effect is almost impossible to determine. It must be concluded then, that other methods of classification would be preferred to the use of M-F scales.

Statistical Analysis

Several methods of statistical analysis have been used to obtain information about the psychology of women. These include correlational analysis, multiple regression and discriminate analysis.

Correlational analysis has been the most frequently used measure psychological variables. The major difficulty of this approach is that this method cannot handle enough variables at a time and consequently it is difficult to state with sufficient assurance possible cause and effect relationship between two variables. This approach does not appear to greatly contribute to the knowledge of women's psychology.

Since this investigation is concerned with the interrelationship between several variables and their effect upon women's response style, it cannot be the statistic of choice in this study.

Multiple regression shows the greatest promise for behavior prediction because many elements may be treated simultaneously. If it were possible to determine which cultural factors contributed to high level predictions and to quantify those factors then the accuracy of psychological prediction could be greatly improved. Some attempts have been made in
this direction. Currently the United States Department of Labor has begun to collect data to predict labor market manpower potential, career mobility, effectiveness of career planning, etc. In the area of education Astin (1965) and Thistlethwaite (1963), for example, have collected data which predicted fairly well which students will attend which colleges and to some lesser extent their degree of success.

Two major problems block the development of the multiple regression approach. It requires a large investment of time and money to collect sufficient data to be accurate for application to large sample. Secondly, the development of weights for regression equation is especially difficult for cultural factors that are in constant flux.

It may be seen that while the multiple regression approach is an effective means of psychological prediction, practical considerations limit its use in short term, poorly funded research with samples of relatively small size.

Discriminate analysis consists of those statistical techniques which identify differences between groups. Tested differences may include differential response to treatment, investigation of differences of traits or characteristics or differences in response characteristics. One of the major uses of discriminate analysis is to test the validity of classification on a prior basis, e.g. the testing of the hypotheses that boys and girls differ on n-Ach when classified as males and females. Like other statistics it may be seen that discriminate analysis will not es-
tablish a cause and effect relationship.

Since multiple regression is prohibitive because practical consideration and since neither correlational nor discriminate analysis fully meet the needs of this study both of the latter techniques will be used to obtain the greatest information about the variables of interest in this study.

In the next section of this chapter, the education and career planning methods for women will be discussed. The purpose of this discussion is two-fold; to show the inadequacies of the present educational and career planning for women and to demonstrate the importance of this topic for further investigation.

Career and Educational Planning for Women

Higher education for women in the United States has generally followed one of two curriculums. Prior to the founding of the land grant colleges most women who attended colleges attended non-coeducational liberal arts schools. The purpose of these colleges was to graduate "gentlewomen" knowledgeable in the arts and literature. During the 1800's land grant and coeducational colleges were founded. While women's liberal arts colleges continued to educate women in the traditional manner, the newer colleges began to expose women to the same curriculum as men.

Partly due to the development of two rather divergent philosophies
of women's education and partly due to antithetical cultural demands upon bright women, vocational guidance has become limited in its ability to meet women's needs.

Lewis (1968) clearly stated the problem faced by counselors as they attempt to assist girls in making career and curriculum choices. He states:

On one hand as girls prepare for the role of wife and mother, which for many is the primary goal in life at this time - one would expect that a liberal arts education would be the most beneficial...

But opposing this is the expectation that a girl will graduate from college with a marketable skill. (Lewis, 1968, pp. 189-190)

While college personnel workers are struggling to provide educational plans to meet these antithetical demands they have received little assistance from psychology. For example, the prediction of the degree of career commitment has just begun to be studied (Schessell, 1968, Harmon, 1966). Most vocational guidance tests are in some ways inadequate for women (see Chapter II).

Psychology has also not assisted counselors or students in separating fact from cultural myth in the relationship between the amount of education or area of career choice and marriageability. A review of the psychological and sociological literature revealed no studies which directly investigated the relationship between educational level and career choice of women and the frequency that these choices are found desirable characteristics of potential wives. Some studies do show assumed desired
characteristics. Horner (1969) and Weiss (1962) found that women inhibited achievement performance when placed in the same room as men. Steinmann and Levi (1964) found that women believed that men desired passive women. These findings suggest that passivity and non-assertiveness is assumed to be viewed as desirable by men but this assumption has yet to be demonstrated. Although psychology has failed to investigate the distribution of men's preference for certain female characteristics, vocational counselors continue to funnel career oriented women into less competitive careers (Lewis, 1968).

The noncareer needs of career oriented women are not well served by current vocational-educational planning techniques. Once a woman is identified as career oriented she is usually exposed to the same curriculum as her male counterpart. Since the majority of career women marry they will be expected to fulfill roles beyond their major careers. They will also likely face periods of unemployment. If noncareer interests are not explored and developed it is likely that many women will have adjustment problems which might be avoided.

An Alternative Approach to Career Planning

One possible solution to the problem of better educational and vocational planning for women might be to depart from the traditional pattern of trying to match a particular woman to a particular career.

Rather if women were identified as a "type" such as Social or Artis-
tic, i.e. if wide categories rather than career titles were used, then it might be possible to design a curriculum which would train a woman simultaneously to enter any one of several related careers. A woman could prepare for related careers a variety of occupational levels. This would allow her to select a career later for re-entry depending on several factors such as 1) time for retraining, 2) job market demands 3) time available to work, etc.

The Holland Vocational Preference Inventory (VPI) will divide women into these broad categories but has not to date been used in this approach to vocational guidance for women.

**Purpose of the Investigation**

The psychology of women was chosen as a general area of investigation because as previously demonstrated, the area has been so inadequately studied. The more specific area of career development was chosen for several reasons. 1) The psychology of career development and planning effect a greater number of women than any other area of psychology. 2) Methods of educating women need change and improvement. Better vocational guidance can lead to better education by altering the educational demands women place upon colleges. 3) There are already a number of potentially useful psychological instruments available in this area which could be refined to serve women better. 4) Vocational planning and career development theory are areas of psychology which have potential for drawing
together many diverse areas of psychological study.

This study will investigate the relationship between passivity, conformity and type of career commitment and their effect upon the validity of women's scores on the Holland Vocational Preference Inventory (VPI). This instrument was selected because it integrates vocational interest and personality style. Currently the instrument is of limited value for use with women, largely because a majority of women fall within two of the possible six categories. Since these categories, Social and Artistic, are those which most closely conform to the stereotypic view of femininity, the question arises whether or not women are responding to items purely on the basis of content.

Summary

This chapter has demonstrated the inadequacies of the clinical approach to the investigation of the psychology of women. The limitation of the direct measurement of masculine-feminine differences has also been demonstrated.

It may be concluded that the statistical approach is the most fruitful approach to this investigation. Further, a combination of correlational analysis and differential analysis has been selected as the most appropriate method for obtaining the maximum amount of information of the interrelationships between the variables of complex phenomena.
Methods related to educational and vocational planning were suggested as an area for investigation because 1) it touches many women's lives; 2) current practices do not meet women's needs adequately; 3) there are already several instruments in this area which could be of potential usefulness to women; 4) changes in methods of career guidance may be the most effective method of changing the educational process for women.

Specifically this study will investigate the relationship of belief in luck, need for social approval, career commitment and women's responses to Holland's Vocational Preference Inventory (VPI). Although it is not within the scope of this study it is hoped that by identifying the effect of personality variables on response style, it will be possible to revise the VPI so that women may be validly classified according to Holland's scheme (Holland, 1962).
CHAPTER II
RELATED RESEARCH

The relationship between feminine role, career choice and vocational guidance for women has been discussed in great detail (e.g. Lewis, 1965, 1968; Neuman, 1963; Mueller, 1949; White, 1959). However, little research has been conducted in these areas which might lead to improved vocational planning for women. One of the great problems in doing research in this area is the vagueness of such terms as feminine role. Not only is this term vague but it also is emotionally laden. The selection of variables for study in this investigation is, in part, an attempt to identify quantitative factors which may differentiate women who engage in different vocational roles and who consequently view the feminine role in different manners. This study, then, seeks to investigate elements which may be related to the feminine role in quantitative rather than descriptive terms. Without such an approach to the study of women it will be impossible to improve vocational planning for women.

Although a moderate amount of research has been conducted investigating social desirability, locus of control and career choice, the variables selected to be investigated, a review of the literature reveals no studies which investigate the interrelationship among all three variables. The establishment of the interrelationship of these variables may be very
important in furthering the development of career theory and vocational planning techniques for women because they may effect women's responses in a wide variety of situations. Two possible effects may be that they distort research findings comparing career and non-career oriented women and they may affect classification in measuring devices which are based upon the trait factor model.

In order to more fully understand the relationship among 1) women's career choice; 2) the social desirability factor and 3) internal-external control, it will be necessary to select instruments that adequately measure these variables. Selection of each instrument will be based upon a review and evaluation of the related literature.

Career Preference

The measurement of career preference may be divided historically into two distinct eras. During the period between 1920 and 1950 the measurement of career preference was one aspect of the psychology of individual differences. Studies were made of the distribution of aptitudes, interests, attitudes and values and tests were constructed to measure these variables. By the early 1950's formal career development theories had been developed and instruments related to these theories appeared.

Of the early tests of individual differences aptitude and interest tests appear to have the most relevance for occupational psychology. Aptitude tests were developed to measure many skills: clerical, musical,
dexterity, etc. A discussion of aptitude testing will not be included since the major focus of this study is career selection rather than performance but should be noted since it was an important development of this time. Interest measures developed during this period have received continuing use and have been the object of much research. The two most popular interest instruments developed prior to 1950 are the Kuder Preference Record (Kuder) and the Strong Vocational Interest Blank (SVIB). These two tests differ somewhat in their approach to interest measurement.

The Kuder Preference Record attempts to measure interest in activities which are similar to tasks required in particular jobs, e.g. detailed work and accounting. The relationship between Kuder scores and job success and job satisfaction has not been clearly demonstrated. Studies that measured the relationship between Kuder scores and job success showed very low or nonsignificant correlations between the two variables. (See Super and Crites, 1949, pp. 485-487; Crites, 1969, p. 456; and Horrocks, 1964, p. 676 for a concise review of these studies.) Only a few studies (Hahn and Williams, 1945; De Michael and Dabelstein, 1947; Lipsett and Wilson, 1954; Jacob and Traxler, 1954) have investigated the relationship between Kuder Preference Record scores and job satisfaction. These studies showed low, nonsignificant and high correlations respectively. It appears that some differences in the findings may be explained by differences in research methodology. Nevertheless, the relationship between Kuder scores and job satisfaction is unclear.
Of more importance to this study is the lack of correlation between the Kuder Preference Record scores and the major personality inventory scores. Cottle (1950) found only low positive or negative correlations between interests measured by the Kuder Preference Record and personality variables measured by the MMPI and Bell Adjustment Inventory. Many of the correlations between the two types of lists were zero. Since one criterion for the test selected for use in this study is that the test be a career oriented personality measure, the Kuder Preference is rejected.

The Strong Vocational Interest Blank (SVIB) does not necessarily concern itself with work related interests. The inventory attempts to compare the interest patterns of individuals tested with the interest pattern of those already in the field. The assumption is made that the more similar a person's interests are to those of persons already in the field the more satisfied the entering person will be in that occupation. This instrument predicts career entry for thirty-three to fifty percent of the subjects tested (McArther and Stevens, 1955; Strong, 1955; Wightwick, 1945). Correlation between SVIB scale scores and job satisfaction range between .21 and .35 (Strong, 1955; Schwebel, 1951; Kates, 1950). These correlations are low but significant. While the SVIB's validity is greater than the Kuder Preference Record, the SVIB must be rejected as an instrument for this study for the following reasons. The SVIB yields scores for specific career titles. As previously discussed in Chapter I, selection of specific career for entry is not likely the most useful approach.
to career guidance for women. Secondly, the SVIB discriminates against women interested in careers requiring graduate education. While the men's form of the SVIB yields scores for twelve occupations which require postgraduate education, the women's form only includes five such positions. Furthermore, noncareer oriented women are over classified because less similarity with the original sample is required to receive an A rating on professional scales is required of career oriented women than men because small number of professional women in the original sample (Harmon, 1966). For these reasons the SVIB is rejected for use in this study.

A rather indirect approach to career preference but one which is often used in counseling is the measurement of personal needs. By determining personal needs it is possible, at least theoretically, to select an occupation to meet those needs. The most widely used nonclinical need scale used prior to 1950 was the Edward's Personal Preference Inventory (EPPS).

The EPPS is a 225 forced choice inventory which attempts to measure fifteen "manifest needs" as defined by Murray (1938). This test suffers from several inadequacies which eliminates it from consideration as an instrument for use in this study. It has yet to be demonstrated that the EPPS does indeed measure Murray's list of manifest needs (Norrell and Grater, 1960; Walsh, 1959) nor has it adequately been demonstrated that Murray's list of manifest needs serves as a motivating force in vocation-
al behavior. Because of the lack of direct demonstrated relationship between measured need and vocational behavior, the EPPS is rejected as an appropriate measure for this study.

Tests developed since the advent of formal career theories tend to be more sophisticated than those developed between 1920 and 1950. First they are based upon extensive and comprehensive theory. Secondly, they usually take into account many factors simultaneously, such as interest, personality, and environmental factors, etc. Examples of the newer tests include the Minnesota "Need" Scales (Loftquist and Dawis, 1969), the Work Value Inventory (Super and Overstreet, 1960) and the Vocational Preference Inventory (Holland, 1965).

The Minnesota scales attempt to analyze a person's aptitudes, needs, and preferences and to analyze work environments for their potential to satisfy needs. The subject and the particular job are matched for compatibility. It will be noted that these scales are very similar to many earlier aptitude interest and job analysis inventories except they attempt to measure all these variables simultaneously. Although these instruments appear to have great promise especially as a tool in individual counseling and as a technique for work environment description, they are still in the primary stages of development and are used almost exclusively to test the career theory of their authors. A second reason they are inappropriate for this study is that they cannot be used to test hypotheses about groups of subjects because they are designed to match a particular
individual and a particular job.

An example of the newer vocational motivation scale is Super's Work Values Inventory. With construction similar to the Kuder, the Work Value Inventory uses items which test value preferences rather than task preferences.

For example:

a) create something new

b) manage people and activities

This instrument is relatively new and is used primarily as a research tool. The relationship between WVI, job satisfaction and job success has not yet been determined but research related to this problem is currently under way. (Hoyt, 1963, 1965.) The construct validity may also be questioned. It is difficult to determine the difference between the work value items and interest items of the earlier tests. The inventory was not selected for the above reasons.

The Holland Vocational Preference Inventory is a personality-interest inventory. It can be classified as either a personality or interest inventory. The test classifies subjects into one of six personality types on the basis of the subjects positive responses to career titles.

Holland (1965) contends that the expression of the attractiveness of career titles is one facet of personality which can be used to determine an individual's "type". After type has been determined, prediction of behavior beyond career preference can be made. The inventory has been
shown to have relatively predictive validity for men (Holland, 1962, 1963, 1964; Wall, Osipow and Ashby, 1967) but not for women (Holland, 1962).

This inventory was selected for use in this study because it meets the greatest number of criteria for selection for use in this study.

1) It is a career oriented personality measure.
2) It divides subjects into groups of career types rather than yielding career titles for consideration for entry.
3) Groups are based on large categories which could include several occupational levels rather than career titles.
4) It is based upon a comprehensive career development theory.
5) A moderate amount of research has already been completed using this test.

The VPI's lack of validity for women does not present a problem since the major goal of this study is to determine the effect of variables which may reduce the validity of the women's forms of many scales. The lack of validity may serve to make the effects of the variables more obvious.

Although the Holland scales will categorize career and personality types it does not measure career plans nor does it measure the likelihood that women will use their educational and vocational training. In order to obtain this information it was necessary to design a Personal Data Sheet and a Career Commitment Form.
Uncontrolled Personality Variables and the Validity of Holland's VPI for Women

In spite of the fact that interest variables are generally discussed and measured as separate entities from other personality variables, the distinction between interest and personality factors has never been made clear. This is due, in part, to the wide variety of definitions given interest (See Gaddis, 1959; for a brief historical survey of the concept of interest).

Regardless of how interest is defined it is usually viewed as a motivating variable. Super and Crites (1962) have defined interest as:

the product of interaction between neural and endocrine factors on one hand and the opportunity and social evaluation on the other.

It is obvious that such inclusive definitions inhibit experimental testing of the concept especially in research which requires differentiation between attitudes, interests, values and personality variables is required. The problem of adequate definition may account for the fact that no studies investigate the interrelationship between aptitude, interest and personality simultaneously (Crites, 1969).

Some research has, however, been conducted relating interest and personality factors. Super and Crites (1962), after reviewing the literature concluded that interest has a very low correlation with feelings of self-esteem and adequacy but is related to social adjustment. They refer
in particular to Darley and Hagenah's (1955) study which found that Social Adjustment scores on the Minnesota Personality Scale significantly differentiated between business contact and social service interest from those of other types of interest.

The relationships between interest and personality factors discovered to date are of little value to those interested in constructing vocationally related personality measures. Part of the problem is that the personality inventories used to obtain personality measures do not measure personality variables which are necessarily related to work interest or performance.

Holland resolved the problem by defining interest as one aspect of personality rather than a personality correlate. He developed the VPI to determine personality type on the basis of interest. Interest is used for classification purposes rather than as an independent variable. His definition of interest has not been validated but his test does appear to have predictive validity for men.

To develop descriptive categories or types for this instrument and others based upon the trait factor model, only those characteristics which most efficiently discriminate one type from another are usually considered. In other words, types are determined by a relatively few, easily observable or measurable personality characteristics. These characteristics, by definition, are unevenly distributed across the population. Characteristics which are widely spread throughout the population and do not dis-
If a relatively weak discriminatory variable is widely spread across categories but differs in strength between categories then it may affect the probability of being classified within one or a set of categories. For example, it may be seen that the need for social approval may increase the probability of being placed in the Social or Artistic categories of the VPI or lower the probability of being placed in the Realistic category. The degree to which this variable affects classification is unknown because it is not a strong discriminator. While variables with low discriminating power may be of minor consequence as long as the tested sample is very similar to the standardization sample, they may become of major importance when new groups are tested. If the distribution of variables with low discriminatory power differs between the standardization group (e.g., males) and a new group (e.g., females) then the nondiscriminating variables may reduce the validity of the classification scheme. The need for social approval and the internal vs. external control variables may be two such "weak" variables in the VPI scales. Further, the presence of several of these weak variables may have an accumulative effect upon certain scales. That is to say that some scales may be greatly affected when several uncontrolled weak variables influence classification simultaneously. For example, if the Social Scale of the VPI is affected by the social desirability variable and the internal-external control variables and other uncontrolled variables the effect of these
variables may be additive and it may become almost impossible to be classified into any other category. The result would be the lumping together of many persons unalike on the original descriptive variables. Such an effect may explain Holland's (1962, 1963) finding that subjects who were classified as social changed their college major field more frequently than those in other categories.

Until it is possible to identify and control those personality variables which cloud differences within the categories, the construct and predictive validity of the VPI is lowered and the instrument is of limited usefulness for groups different from the standardization sample.

One purpose of this investigation will be to attempt to identify the effects of two of these "weak" personality variables, need for approval and locus of control, upon the classification of women on the Holland's Vocational Preference Inventory. If these two variables do have a strong influence upon category classification then it may be possible to revise the entire VPI so that the scales are more pure, i.e. more discriminating.

Social Desirability and Women's Career Choices

The vocational guidance needs of women were discussed generally in Chapter I. This section will deal more particularly with 1) attitudes toward women's work role and 2) research related to differences between career and noncareer oriented women. It will be shown that there still exists very strong cultural expectations as to women's work roles. It
will also be shown that the expression of employment plans of women may be greatly affected by the social desirability factor. The social desirability factor has not been adequately considered in research comparing career and noncareer oriented women as will be demonstrated.

Research related to women's educational and career plans conducted during the 1950's and 1960's demonstrated a strong adherence to the traditional feminine role i.e. a woman's major career commitment should be to marriage and raising children. When queried, the majority of girls reported that they preferred marriage and raising children to gainful employment (see Empry, 1958; Donovan and Kay, 1956; Matthews and Tiedeman, 1964). The expressed desire for marriage and children appears to increase from prepubescence to adulthood (Matthews and Tiedeman, 1964). These investigators interpreted the career interest of prepubescent girls as a "pseudo-career drive", although, an equally possible interpretation might be that the expression of career interest in young girls is increasingly discouraged or statements of a desire for marriage and children are increasingly rewarded.

For women who are married, only financial need appears to be socially sanctioned as a reason for employment. (Women's Bureau, 1963; Newer and Neubeck, 1964.) Feldman (1958) and Carroll (1962), however, believe that women use financial need as an excuse to meet other needs through employment. Lewis (1965) explained the widespread expression of traditional attitudes by women while so many are employed. He attributed this con-
tradiction to women having too much invested in their feminine self image to openly admit to needs which are not culturally defined as feminine. He concluded that the cultural devaluation of women's employment while one third of the labor force is feminine demonstrated that women were unrealistic about their futures.

Other interpretations are possible. If the actual role of women differs from the culturally approved role then women are placed in a conflict situation. Such conflicts may be resolved in a number of ways (see Patterson, 1966). One such defense mechanism which would explain Lewis' (1965) observation is that of denial. In the denial defense mechanism the subject either denies that a conflict exists or devalues the importance of one aspect of the conflict. In this conflict women can reduce the conflict of devaluing the value of their employment.

A second defense mechanism may be used to reduce conflict over employment if women choose the traditional homemaking role. They may handle their desire for employment through repression. In the defense mechanism of repression the subject is not aware of a desire to work but the desire may be seen in other behavior. For example devaluation of other women who do work.

If the above explanation is accurate, then the self reported desire to be a housewife vs. career woman may be a better measure of the need for social approval than a measure of career preference.
Social Approval and Career vs. Noncareer Women

The need for social approval has not been adequately considered when interpretations of results of studies comparing career and noncareer oriented women have been made. In many studies contrasting career and noncareer oriented women of college age paint career oriented women as maladjusted, unfulfilled, unhappy persons e.g. White (1959).

Two factors should be noted. First, results are often reported in value laden language. Frequently the negatively value term is applied. For example, lack of contact with the parental family may either be interpreted as distance or alienation or as independence; reports of lack of satisfaction may be interpreted as unhappiness or a desire for improvement. Usually the former interpretation is applied.

Secondly, measuring devices used in these studies often lack subtlety and are easily "faked".

If generalizations can be made from the studies of Crowne and Leverant (1963) who found that those who have a high need for approval rate boring situations interesting and if housewives have a higher need for approval than career women then it might be expected that housewives would tend to give more positive ratings to their lives than nonhousewives. It may be that studies which employ ratings of satisfaction may be merely measuring the need for social approval and its related behavior rather than satisfaction, happiness, etc. Until the social desirability factor is controlled it is very difficult to determine the meaning of the results.
of studies comparing career and noncareer oriented women.

Studies of older women also suggest caution in interpreting comparative studies of younger girls and suggest that social desirability or need for approval may be a significant factor in women's vocational behavior. For example, Eyde (1960) found that re-entry into the work force may be best predicted by work values rather than expressed work plans five years earlier. Mulvey (1963) found that college graduate women i.e. those defined as having high n-ach were most likely to re-enter the labor market and to report the most satisfaction with their lives. Mature women who reported the greatest satisfaction were those who mixed marriage and work (Denmark and Guttentag, 1967).

Several possible conclusions might be drawn. 1) For women, statements of career plans have very little relationship to actual future behavior. 2) If the need for approval is a factor in career choice, then, once women have fulfilled their culturally defined role, i.e. proven themselves as women, then many of them are more free to engage in less culturally approved activities. 3) If the need for approval is a factor it appears to become increasingly less important as a woman matures.

It may be seen that the effect of social desirability responses has not been adequately controlled nor considered in data interpretation in studies of women and that the results of the differences between career and noncareer women may possibly be differences in the degree of need for approval rather than differences in other personality characteristics.
A goal of this dissertation will be the investigation of the relationship between expressed commitment to the career or homemaking orientation and the measured need for social approval. If it is found that home oriented women do indeed have a higher need for social approval, then reconsideration of the interpretation of previous studies contrasting career and home oriented women should be made in the light of the previous discussion.

Locus of Control and Women's Career Choice

The degree to which one believes he controls his environment may be a significant factor in the selection of a career. This factor has received little attention to date by those who are concerned with occupational psychology. A review of the literature revealed no study which directly relates internal vs. external control and career choice. The few studies which investigated the relationship between internal vs. external control and variables related to work suggest that it may be an important variable in career choice.

Verblen (1899) linked passivity and nonproductiveness with belief in luck. Seeman (1963) reported a relationship between alienation or subjective powerlessness and belief in luck. Rotter and Mulry (1965) reported a relationship between belief in luck and low achievement motives. Rotter and Mulry (1965) also found that internally oriented individuals prefer reward under skill rather than chance conditions.
Merton (1946) and Elfran (1963) describe belief in luck as measured by the Rotter scale as a defense mechanism used to maintain self esteem in the face of failure.

In summary the externally oriented person appears to be passive, defensive, have low achievement drives and values reward under chance conditions.

Several hypotheses can be drawn as to the relationship between the internal vs. external control variable and career choice.

1. Those who are externally oriented are more likely to choose careers at either the lower occupational levels or in positions where they will be supervised because a) they seek to avoid responsibility for failure and b) they have low achievement needs.

2. Externally oriented persons are more likely to select careers in areas where the degree of effort is not necessarily related to the outcome i.e. areas where external forces work against success. For example, social work or the arts.

3. Externally oriented persons are likely to avoid atypical careers because atypical careers often include a high risk of failure.

4. Externally oriented women will avoid typically male dominated careers because sex discrimination increases the need for striving if one is to succeed and there is a greater chance of failure.

5. Women who are exteriorly oriented are more likely to choose homemaking as a career because a) homemaking is noncompetitive,
and b) the skills required are low level skills that need not be consistently applied.

6. Women who value the traditional role i.e. prefer homemaking, would also value feminine passivity. Since belief in luck appears to be related to passivity it might be expected that women who choose homemaking would be more externally oriented.

The above are a few of the hypotheses that might be drawn between the relationship of locus of control and career preference. For this study, hypotheses here numbered two through six will be included for investigation.

The Social Desirability Variable and Need for Approval

During the early 1950's, Edwards began investigating that item characteristics which caused some items to be more frequently endorsed than others. He found a correlation of .87 between probability of endorsement and judges ratings of social desirability. Edwards (1957) stated that the construct enables the placement of an item along the social desirability continuum and allows highly accurate prediction of the percentage of endorsement. Social desirability in this context is a text or item characteristic not a personality variable.

Studies by Edwards and others showed a widespread agreement as to what is socially desirable. Cowen and Tingas (1959) obtained similar ratings with a wide range of personality tasks. Males and females rated
the social desirability of personality test items in almost identical fashion (Edwards, 1957). Moreover, Norwegians, alcoholic TB patients and hospitalized psychiatric patients gave very similar ratings to psychological inventory items (Edwards, 1957).

Several studies by Edwards and his colleagues investigated behavior manifestations related to social desirability test items responses. Using the Edwards Personal Preference Schedule (EPPS), Edwards and Diers (1962) found a slight tendency for high scores on the social desirability scale to choose "I can't say" responses than did low scores when confronted with forced choice items matched for social desirability or undesirability. Testing the relationship between social desirability and aggression, Allison and Hunt (1959) found that high social desirability subjects made fewer aggressive responses when faced with frustration in socially ambiguous situations than did low SD subjects.

The correlation of some variables has been discovered by the use of Edward's scales. However, its usefulness is limited because items of the Edward's SD scale are drawn from a personality inventory and consequently are confounded by item content. In order to avoid the confounding effect of the implication of pathological content a new scale was necessary.

As an outgrowth of the above mentioned research, Marlowe and Crowne became interested in measuring social desirability as a personality and behavioral variable.

They devised a forty-seven item scale which avoided the content con-
founding effect by selecting items which were culturally approved but virtually untrue for all people. Special care was given to avoid pathological or abnormal connotation. Items were first selected by judges ratings and later reduced to those items which discriminated between the high and low scores at the .05 level of confidence.

The Marlowe-Crowne Social Desirability Scale (MC-SD), has been found to correlate with a number of personality and behavioral variables. High MC-SD scores were more likely to conform in Asch type situations (Strickland and Crowne, 1962; Crowne and Marlowe, 1967) than low scorers. They were more likely to report tasks designed to be dull as interesting or valuable when administered by a person defined as "psychologist" (Marlowe and Crowne, 1961). High MC-SD scorers were also found to be more susceptible to verbal conditioning than were low MC-SD scorers (Strickland, 1962; Marlowe and Crowne, 1961) concluded that these studies demonstrated that those who have high social desirability scores yield to influence in order to receive social approval. They believed that high SD scores are an expression of need for approval.

Since high and low SD subjects respond differently in both experimental and testing situations, it may be hypothesized that their responses to a personality-vocational instrument will be affected by their level of need for approval. Furthermore since need for approval is related to conformity, those who accept the culturally defined or approved feminine role i.e. those whose first career choice is homemaking, should receive
higher SD scores. It may also be hypothesized that those who score high on the MC-SD scale will select the stereotype feminine career areas - social and artistic - more frequently than those who receive low SD scores.

The Marlowe-Crowne Social Desirability is the major inventory which treats social desirability as a personality variable. Other tests which purport to measure social desirability either measure item attractiveness e.g. Edwards scale, or are check lists which measure social skill or personal attractiveness. (See Psychological Abstract, 1963-1970.)

The Locus of Control or Internal-External Control Variable

As an outgrowth of previous studies of individual differences, Rotter (1954) became interested in the distribution of the "locus of control" (usually referred to as internal-external control). Internal control is the belief that one can control his environment through his own efforts while external control is the belief that one's life events are largely determined by luck or chance. Previously (Veblen, 1899) externally oriented cultures had been shown to be characterized by passivity and lack of productivity. Later, Seeman (1959) related belief in external control to alienation or subjective powerlessness. In order to investigate the variable experimentally Rotter devised a thirty-three item inventory to determine the degree to which an individual believed he could control his life events through his own efforts.
Several correlates of internal vs. external control have been found. "Internals" i.e. those who score toward the internal end of the scale, appear to attempt to control their environment by information seeking and active roles in organizations and protest groups. (Seeman and Gore, 1962; Gore and Rotter, 1963; Strickland, 1965.) Phrares (1965) also found that internals were more successful in influencing attitude changes. Internal subjects also appear to have greater involvement in achievement under skill conditions and to value reinforcement under skill rather than chance conditions (Rotter and Mulry, 1965), and their behavior in betting or goal setting situations is more like those with high need-achievement than those with low need-achievement (Rotter and Mulry, 1965; Atkinson, 1958).

Internals appear to "repress" or forget failure more than externals, perhaps because externals explain failure in terms of bad luck. Internals expressed more confidence in their own judgment in Asch-type studies (Crowne and Leverant, 1963).

Internals show resistance to external manipulation. Internals who were aware that they were being conditioned, conditioned less than externals who were aware that they were being conditioned. (Strickland, 1962; Getter, 1962.) Furthermore, internal subjects gave shorter TAT stories under subtle suggestion conditions (Strickland, 1962).

In summary, internally oriented subjects likely are more self-confident, higher in need achievement and less susceptible to influence
and likely less conforming. They engage in information seeking and are more often engaged in social change activities.

Several sociological factors seemed to be related to internal vs. external orientation. Lower class Negroes were found to be significantly more external than either middle class Negroes or Whites (Battle and Rotter, 1963; Lefcourt and Ladwig, 1965). Parents of externally oriented children had lower educational levels (Crandull, 1961).

Internal or external orientation does not appear to be related to political affiliation (Johnson, 1961), sex, (Rotter, 1966), or intelligence (Cardi, 1962; Strickland, 1962; Ladwig, 1963). One important exception has been found to the lack of correlation between intelligence and orientation; brighter lower class Negro children tend to be more external (Battle and Rotter, 1963).

The findings of Rotter and others generate several hypotheses about the relationship between internal-external control and women's career choice, vocational need and response to vocational planning instrument. First, it may be hypothesized that externally controlled subjects will be more likely to select "housewife" as a career. This hypothesis can be based upon several factors. 1) Externally oriented persons have low achievement needs. 2) They appear to be more likely to conform to cultural norms or conversely to be not as like to select careers in which they would face cultural disapproval.

A second hypothesis might be that externally oriented women will be
classified as Social or Artistic on the VPI because there is no housewife scale and the Social and Artistic careers are the most culturally approved careers for women.

A third hypothesis might be that home oriented women will have higher external scores than either career oriented women or men since external orientation is related to traditional feminine interest patterns (Laime and Zykowski, 1963).

Although the I-E scale and the MC-SD scales were constructed to have low correlation, those with external scores and those with high SD scores react in a similar fashion under a number of experimental conditions. Both are more susceptible to experimenter influence than are internally oriented subjects or those who receive low SD scale scores. A factor which both variables may have in common may be conformity.

Minimal sex differences on the I-E scale may be due to cancellation effects between conforming and nonconforming women. By separating women on the basis of career commitment, the relationship between conformity and external influence may become more clear.
CHAPTER III

METHODOLOGY AND HYPOTHESES

The general inadequacies in understanding the psychology of feminine vocational planning and the more particular problem of the confounding effect of personality variables upon women's responses to a vocational interest inventory have been discussed in the previous chapters. The variables selected for investigation in this study were discussed. The methodology and hypotheses of the study will be presented in this chapter.

Instruments

The Personal Data Sheet. This instrument was designed by the investigator to obtain the usual personal information about the subject: name, sex, age, major field, father's and mother's occupation. These items were used to divide the subjects into male and female groups and to make the career commitment questions appear to be less important. That is to say, reduce the social desirability factor of the career items which might cause the subjects to overstate their vocational and educational goals.

The Career Commitment Form. This inventory consisted of questions
six through eleven of the Personal Data Sheet. Male subjects were asked to complete questions six through nine and female subjects were asked to complete the entire form. Questions included in this form were: 1) career plans; 2) length of career choice; 3) level of academic work aspired to by the subject (M.A., Ph.D.) and 4) women's desired life style: i.e. homemaking, part-time employment or full-time employment and 5) attractiveness ratings of each of these life styles. Questions six and seven were multiple choice. Question eleven consisted of three, five point rating scales of life style attractiveness.

A copy of the Personal Data Sheet and Career Commitment Form may be found in Appendix D.

The purpose of the Career Commitment Form was to classify women as either career or homemaking oriented. The classification was based upon the following rules:

1. If full-time employment was rated as the most preferred activity with part-time employment and housewife rated lower, women were rated as career oriented.

2. If part-time employment was rated as the most preferred activity with full-time employment rated higher than homemaking, women were classified as career oriented.

3. Women who rated part-time employment, full-time employment and homemaking equally attractive were rated according to their career plans statement. Usually these women were rated as
45

home oriented.

4. Women who rated homemaking as preferable to full- or part-time employment were classified as home oriented.

If classification by these rules was impossible, the questionnaire of the person was eliminated from the sample. Ten persons were eliminated from the sample for this reason.

Holland Vocational Preference Inventory (VPI). This inventory is a one hundred sixty item list of vocational titles to which the subject is asked to respond whether or not the title appeals to him. The inventory yields scores in six vocational categories: Social, Realistic, Artistic, Intellectual, Conventional and Enterprising. It also yields five personality scores: Impulse Control, Status, Occupational Level, Masculinity-Femininity and Infrequency.

Holland (1959, 1962, 1965) stated that the expression of interest is one form of the expression of personality and that subjects may be divided into vocational-personality types on the basis of his interest in types of careers.

The VPI categorizes subjects into Holland's descriptive categories of career-personality types. These categories were first devised theoretically but have since been validated empirically for men but not for women (Holland, 1962, 1963, 1964; Osipow, Ashby and Wall, 1966; Wall, Osipow and Ashby, 1967).

Concerning the lack of validity of the VPI for women, Holland (1966)
stated:

Unfortunately most of our empirical knowledge about personality and vocational behavior has been obtained in studies of men. Consequently, it is difficult to construct a theory of personality that applies equally to women. The present theory is no exception: it is based chiefly upon studies of men and probably is less useful for understanding the behavior of women. A special but closely related theory for women is desirable, but at this point I have none to offer.

As previously stated, the lack of validity of this scale for women is not necessarily a negative factor in this study since one of the prime goals of the investigation is to determine if some personality variables are related to low validity.

Since this study is primarily with women's responses to vocational items rather than Holland's personality types, only the vocational scales and the subjects' responses to scale items will be used.

Each vocational scale consists of fourteen items. The true-false format is used. Scale scores are the number of affirmative responses to the items in each scale.

A copy of the Holland Vocational Preference Inventory may be found in Appendix A.

The Marlowe-Crowne Social Desirability Scale (MC-SD)

This measure entitled Personal Reaction Inventory is a thirty-three item, true-false questionnaire which measures the degree to which a per-
son presents himself in a favorable light and avoids possible criticism. Crowne and Marlowe (1967) described this personality variable as the need for approval. The need for approval as expressed in MC-SD scale scores has been related to conformity in a variety of situations (Marlowe and Crowne, 1961; Crowne and Strickland, 1961; Marlowe, 1962; Strickland and Crowne, 1962).

This test is a measurement of a personality variable as contrasted with Edward's (1957) ratings of test items. The MC-SD items have been screened for pathological connotation and the content is that of desirable characteristics which are socially approved but which are highly improbable in fact.

An illustrative example is:

T or F I never hesitate to go out of my way to help someone in trouble.

The scale score is tabulated by adding all the items responded to in the socially desirable direction. The possible score range is from zero to thirty-three.

A copy of the Personal Reaction Inventory may be found in Appendix B.

The Rotter Internal-External Scale

This inventory, entitled the Social Reaction Inventory, is a twenty-nine item inventory employing the forced choice format. It is a refinement of the earlier James-Phares (1957) questionnaire. It purports to
measure the degree to which an individual believes he is the master of
his environment rather than victim of luck or chance. As previously men-
tioned, the I-E variable has been found to correlate with some social
class differences (Graves, 1961; Battle and Rotter, 1963; Lefcourt and
Ladwig, 1965; Conn and Crowne, 1964), betting behavior in Asch type ex-
periments (Crowne and Leverant, 1963; Leverant and Scodel, 1960), need
for achievement (Rotter and Mulvey, 1965; Efran, 1963; Franklin, 1963),
verbal conditioning and extinction patterns and the degree of experimen-

Crowne and Conn (1965) have described the external orientation as a
defense mechanism against failure and as an expression of passivity.
Efran's (1963) study of forgetting failure supports their interpretation.

An illustrative example of an I-E item is:

a) Sometimes I can't understand how teachers arrive

    at the grades they give.

b) There is a direct connection between how hard I

    study and the grades I get.

The test is scored by tabulating the number of answers which are
responded to in an external direction. The higher the score the greater
is the external orientation. There are six filler items which are not
tabulated. The possible score range is from zero to twenty-three.

A copy of the Social Reaction Inventory may be found in Appendix C.
Subjects

Subjects were one hundred twenty-five male and one hundred twenty-five female, eighteen and nineteen year old freshmen, who were enrolled in an introductory psychology course. They might best be described as a quasi-volunteers. Each student enrolled in this course is required to participate in a given number of experiments. Students are, however, free to select among a wide variety of experiments. The subjects were to some extent self-selected. Biographical data indicated a wide range of college majors suggesting that the self-selection factor did not appear to attract a particular sub-group from the population. (See Table 1, page 50.)

Although some black and foreign students were tested, their questionnaires were removed from the sample to avoid confounding effects. The following number of questionnaires were removed for the above reasons: four black students, one male, three females; five foreign students, one male, five females; one male Mexican-American whose second language was English.

All questionnaires which were incomplete or appeared to be responded to in a random or unresponsive manner were also removed from the sample. Questionnaires were considered unusable if: a) seven or more VPI items were left blank; b) two or more MC-SD or I-E items were left blank; c) rating scales of the Career Commitment Form were not completed. Unresponsive responses were determined by inspection, e.g. yes and no responses alter-
TABLE 1

MAJOR FIELDS OF SUBJECTS a

<table>
<thead>
<tr>
<th>Career</th>
<th>Men</th>
<th>Women Home Oriented</th>
<th>Women Career Oriented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>10</td>
<td>22</td>
<td>19</td>
</tr>
<tr>
<td>Engineering</td>
<td>12</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Business</td>
<td>5</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Medicine, etc.</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Nursing &amp; Allied Arts</td>
<td>0</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Law</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Physical Science</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Biological Science</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Social Science</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Social Work</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Arts</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics</td>
<td>0</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Computer Science</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Pilot</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Journalism</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Math</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Undecided</td>
<td>14</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>50</td>
<td>53</td>
<td>48</td>
</tr>
</tbody>
</table>

a All subjects are enrolled in University College. The above is a list of the subjects' proposed college majors.
nated. Sixty-three questionnaires from males were removed because they were incomplete while six questionnaires from males were removed as unresponsive. Fourteen questionnaires from women were removed as incomplete and none for unresponsiveness.

Certain differences between the male and female groups should be noted. Men in a ratio to women of about six to one returned unusable questionnaires. It is difficult to speculate on the reason for this but it appears that men were more cautious about reporting personal preferences to items which they did not have strong positive or negative reactions. Secondly, they less often followed directions correctly.

A final sample of fifty males, forty-eight career oriented women, and fifty-three home oriented women were selected. The sample was considered of sufficient size in spite of the small male sample because

1) the male sample was to serve primarily only as a comparison group and
2) statistics were available for male samples previously tested at the Ohio State University on the I-E and MC-SD variables.

**Procedure**

The scales were administered in written form to groups ranging in size from twelve to twenty persons. The tests were administered in available university classrooms. The time of administration was varied as to the hour of the day and day of the week to avoid excluding any particular subgroup i.e. any major field, due to scheduling procedures of the college
offices. Testing was completed between the fourth and seventh week of an eleven week fall quarter to avoid atypical characteristics of those who sign up for experiments unusually early or unusually late in the quarter. The following instructions were given to the subjects.

Previous research has shown that people who hold similar interests tend to be interested in similar careers. I would like to discover if people who hold similar beliefs are interested in similar careers. Included in your booklet are two questionnaires about your beliefs and reactions to a variety of things. There is also a third questionnaire which measures your career interests. I have included a personal data sheet so I will know a little about your vocational background and career plans. Please follow the instructions at the beginning of each questionnaire and complete the questionnaires in the order that they are presented in your booklet. Your answers are confidential. I am asking that you sign your name to each of the questionnaires. This is to insure that your forms are kept together. Later you will receive an IBM number and your answers will be identified only by that number. At that time the original questionnaires will be destroyed.

No resistance to identifying the questionnaires by name was encountered. Questions about recording responses were answered as they occurred. If a subject requested help in deciding how to respond, he was told to choose the answer he felt to be most true. Subjects were excused from the experiment as they completed the booklet. Test taking time for the four questionnaires ranged from twenty to forty minutes. All subjects were tested by the investigator eliminating as much as possible the differences in response to different monitors.
The questionnaires were presented in differing order to randomize the interacting effect of one questionnaire upon another.

**Hypotheses**

Previous research (Holland, 1965) has shown that men and women do respond differently to the VPI scales. Hypotheses I, II, and III will test if this finding is also true of this sample.

Studies reporting sex differences in response to the MC-SD scale and the Rotter I-E scale show them to be small and likely nonsignificant (Rotter, 1966). However, results are not clearly reported. Hypotheses IV and V were included in order to determine if differences in men's and women's responses to the VPI can be attributed to differences in need for approval and/or internal-external control.

**Hypothesis I.** Women will score higher than men on the VPI Social scale.

**Hypothesis II.** Women will score higher than men on the VPI Artistic scale.

**Hypothesis III.** Men will score higher than women on the VPI Realistic scale.

**Hypothesis IV.** Women will score higher than men on the MC-SD scale.

**Hypothesis V.** Women will score higher than men on the Rotter I-E...
scale, i.e. be more externally oriented.

The above hypotheses will be tested in a null form by an analysis of variance.

The assumption is made that career oriented women respond more like men than like home oriented women to career interest inventories. Previous research indicated that women were more likely to be classified as Social or Artistic than men and less likely to be classified as Realistic (see Holland, 1965; Osipow and Ashby, 1968). The following groups of hypotheses will test whether or not career oriented women do respond more like men than do homemaking oriented women.

Hypothesis VI. Home oriented women will receive higher VPI Social scale scores than career oriented women.

Hypothesis VII. Home oriented women will receive higher VPI Artistic scale scores than career oriented women.

Hypothesis VIII. Home oriented women will receive lower Realistic scale scores than career oriented women.

The above hypotheses in a null form will be tested by an analysis of variance.

In Chapter II the hypothesis was stated that differences between male and female scales on the Rotter and Marlowe-Crowne scales may be
partly hidden due to cancellation effects of career and noncareer oriented women's responses.

The effect of neglecting the social desirability factor upon interpretation of the results of research comparing career and noncareer women has been discussed previously (see Chapter II). The confirmation or refutation of hypothesis IX should clarify whether or not the need for approval and its related behavior account for differences between the two groups.

Several previous studies of minority groups (Graves, 1961; Battle and Rotter, 1963) have shown that minority groups tend to be externally oriented. If women are viewed as a minority group, in the respect that they have less real power, then it would be expected that women, especially noncareer oriented women, would have higher or more external scores. Hypothesis X should clarify why this expectation is not supported by previous research findings.

Hypothesis IX. Women who are home oriented will receive higher MC-SD scale scores than either men or career oriented women.

Hypothesis X. Women who are home oriented will receive high, i.e. more external, I-E scale scores than either men or career women.

The above hypotheses in the null form will be tested by an analysis of variance.
The next group of hypotheses deals with the relationship between the need for approval and vocational classification. Previous research, e.g. Holland, 1965; Lewis, 1965; Lewis, 1968; has demonstrated that women tend to be concentrated in the social and artistic careers. These career areas were also selected as likely to be positively related to social desirability because they tend to be socially sanctioned careers for women. They, therefore, should attract women who have a high need for social approval. Conversely, the Realistic category of the VPI includes careers which women are discouraged from entering and, therefore, women with high need for social approval likely avoid. Confirmation of these hypotheses will demonstrate that the social desirability factor does indeed affect the classification of women in Holland's vocational scheme.

Hypothesis XI. Women with high MC-SD scores will receive high scores on the VPI Social scale.

Hypothesis XII. Women with high MC-SD scores will receive high scores on the VPI Artistic scale.

Hypothesis XIII. Women with high VPI Realistic scores will have low MC-SD scale scores.

The above hypotheses will be tested by determining the significance of the interrelationships between the MC-SD scale scores and the VPI vocational scale scores.
The next group of hypotheses is based upon the finding that internally oriented persons have a higher need for achievement and are more interested in reward for skill than are externally oriented people. It might be concluded that those who are internally oriented would be more likely to consider atypical careers requiring a high degree of personal effort. It might be expected that internally controlled women would be found less often in the socially approved Social and Artistic careers.

Hypothesis XIV. Women with low I-E scale scores, i.e. internally controlled, will receive low VPI Social scale scores.

Hypothesis XV. Women with low I-E scale scores, i.e. internally controlled, will receive high Realistic VPI scale scores.

The above hypotheses will be tested by determining the significance of the interrelationships between I-E scale scores and the VPI scale scores.

**Statistical Analysis**

Two types of statistical analysis were chosen as appropriate. These were an analysis of variance to determine between groups, i.e. men, women, career oriented women and home oriented women, differences on the VPI scale scores, the I-E scale scores and the MC-SD scale scores, and a correlation matrix to determine the interrelationship of all scale scores.
The BMD01V computer program was selected to perform the analysis of variance for the one way design. This program yields F ratios for the entire sample but does not test differences between pairs. Bartlett's test for homogeneity of variance (Winer, 1962) was used to determine significant differences in variance between pairs for those scales which the analysis of variance revealed significant differences between the group. For these same scales, z tests were computed to determine significant differences between means.

The correlation matrix was obtained through the use of the BMD03D computer program. This program produces correlation tables for samples with deleted data. The entire sample was used as the number of cases in this analysis. Correlations were tested for significance by the Students t test (Ferguson, 1959).

The following variables were used in the statistical analysis.

Analysis of Variance
1. Sex
2. VPI scale scores
3. I-E scale scores
4. MC-SD scale scores

Correlation Matrix
1. VPI scale scores
2. I-E scale scores
3. MC-SD scale scores
CHAPTER IV
RESULTS AND DISCUSSION

The various hypotheses will be discussed in the order that they were presented in Chapter III. It will be recalled that the statistical test used for hypotheses I through X was an analysis of variance. The first step in the analysis of variance was the computation of the F ratio to determine the differences between the four groups on the six Holland VPI vocational scales, the MC-SD scale and the Rotter I-E scale. The results of this analysis are presented in Tables 2 through 7, pages 61 through 66 and Tables 12 and 13, pages 72 and 73. For those scales for which significant F ratios were found, differences between means for pairs were tested by z tests (Ferguson, 1959). Bartlett's test for homogeneity was computed to determine the difference between variances for pairs within the analysis of variance for those scales which had a significant F ratio (Winer, 1962).

Results of the z tests may be found in Tables 8, 10 and 15, pages 67, 70 and 79 respectively. Results of the Bartlett test may be found in Tables 9, 11 and 16, pages 68, 71 and 80 respectively. Discussion of the results will be held until all results have been reported.

For the purpose of clarity the hypotheses are restated, followed by the appropriate supporting or rejecting data.
Hypothesis I. Women will score higher than men on the VPI Social scale.
A significant difference was found between the means but not the variances of the men and women on the VPI Social scale. See Tables 2, 8 and 9, pages 61, 67 and 68 respectively.
The null hypothesis can be rejected. Hypothesis I was supported.

Hypothesis II. Women will score higher than men on the VPI Artistic scale.
No significant difference was found between any of the groups on the VPI Artistic scale. See Table 3, page 62.
The null hypothesis cannot be rejected. Hypothesis II was not supported.

Hypothesis III. Men will score higher than women on the VPI Realistic scale.
A significant difference was found between both the means and the variances of the men's and women's Realistic scale scores in the predicted direction. See Tables 10 and 11, pages 70 and 71.
The null hypothesis can be rejected. Hypothesis III was supported.
<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Career Oriented Women</th>
<th>Home Oriented Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Groups</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Sample Size</td>
<td>50</td>
<td>101</td>
<td>48</td>
<td>53</td>
</tr>
<tr>
<td>Mean</td>
<td>3.66</td>
<td>7.703</td>
<td>7.333</td>
<td>8.377</td>
</tr>
<tr>
<td>SD</td>
<td>2.987</td>
<td>3.354</td>
<td>3.569</td>
<td>3.381</td>
</tr>
<tr>
<td>Sum of Squares</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>713.376</td>
<td>3</td>
<td>237.792</td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>2755.41</td>
<td>248</td>
<td>11.111</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3468.786</td>
<td>251</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ F = 21.402^{**} \]

\[ ** p \leq .01 \]
### TABLE 3

ANALYSIS OF VARIANCE BETWEEN GROUPS

VOCATIONAL PREFERENCE INVENTORY

ARTISTIC SCALE SCORES

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Career Oriented Women</th>
<th>Home Oriented Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Groups</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Sample Size</td>
<td>50</td>
<td>101</td>
<td>48</td>
<td>53</td>
</tr>
<tr>
<td>Mean</td>
<td>3.31</td>
<td>3.98</td>
<td>5.625</td>
<td>5.698</td>
</tr>
<tr>
<td>SD</td>
<td>3.31</td>
<td>4.384</td>
<td>4.451</td>
<td>4.375</td>
</tr>
<tr>
<td>Sum of Squares</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>121.77</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>4385.141</td>
<td>248</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4506.914</td>
<td>251</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F = 2.296°

° nonsignificant
### TABLE 4

**ANALYSIS OF VARIANCE BETWEEN GROUPS**

**VOCATIONAL PREFERENCE INVENTORY**

**REALISTIC SCALE SCORES**

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Career Oriented Women</th>
<th>Home Oriented Women</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Treatment Groups</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>Sample Size</strong></td>
<td>50</td>
<td>101</td>
<td>48</td>
<td>53</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>2.7</td>
<td>1.089</td>
<td>.958</td>
<td>1.038</td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>2.68</td>
<td>1.75</td>
<td>1.597</td>
<td>1.427</td>
</tr>
<tr>
<td><strong>Sum of Squares</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Between Groups</strong></td>
<td>110.397</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Within Groups</strong></td>
<td>886.534</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>996.931</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DF</strong></td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mean Square</strong></td>
<td></td>
<td>36.789</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mean Square</strong></td>
<td></td>
<td>3.575</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>F</strong></td>
<td></td>
<td>10.29**</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>p</strong></td>
<td></td>
<td>.01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**p \leq .01**
### TABLE 5

**ANALYSIS OF VARIANCE BETWEEN GROUPS**

**VOCATIONAL PREFERENCE INVENTORY**

**INTELLECTUAL SCALE SCORES**

<table>
<thead>
<tr>
<th>Treatment Groups</th>
<th>Men</th>
<th>Women</th>
<th>Career Oriented Women</th>
<th>Home Oriented Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Size</td>
<td>50</td>
<td>101</td>
<td>48</td>
<td>53</td>
</tr>
<tr>
<td>Mean</td>
<td>4.60</td>
<td>3.05</td>
<td>3.083</td>
<td>3.132</td>
</tr>
<tr>
<td>SD</td>
<td>3.881</td>
<td>3.154</td>
<td>3.267</td>
<td>3.076</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>92.934</td>
<td>3</td>
</tr>
<tr>
<td>Within Groups</td>
<td>2726.476</td>
<td>248</td>
</tr>
<tr>
<td>Total</td>
<td>2819.41</td>
<td>251</td>
</tr>
</tbody>
</table>

\[ F = 2.818^* \]

\[ * p \leq .05 \]
TABLE 6
ANALYSIS OF VARIANCE BETWEEN GROUPS
VOCATIONAL PREFERENCE INVENTORY
ENTERPRISING SCALE SCORES

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Career</th>
<th>Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Groups</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Sample Size</td>
<td>50</td>
<td>101</td>
<td>43</td>
<td>53</td>
</tr>
<tr>
<td>Mean</td>
<td>3.02</td>
<td>2.535</td>
<td>2.563</td>
<td>2.509</td>
</tr>
<tr>
<td>SD</td>
<td>2.607</td>
<td>2.381</td>
<td>2.163</td>
<td>2.584</td>
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<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Squares</th>
</tr>
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<tbody>
<tr>
<td>Between Groups</td>
<td>9.512</td>
<td>3</td>
<td>3.171</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1467.150</td>
<td>248</td>
<td>5.916</td>
</tr>
<tr>
<td>Total</td>
<td>1476.662</td>
<td>251</td>
<td></td>
</tr>
</tbody>
</table>

\[ F = .536^* \]

* nonsignificant
**TABLE 7**

ANALYSIS OF VARIANCE BETWEEN GROUPS

VOCATIONAL PREFERENCE INVENTORY

CONVENTIONAL SCALE SCORES

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Career Oriented Women</th>
<th>Home Oriented Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Groups</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Sample Size</td>
<td>50</td>
<td>101</td>
<td>48</td>
<td>53</td>
</tr>
<tr>
<td>Mean</td>
<td>2.460</td>
<td>1.842</td>
<td>1.708</td>
<td>1.962</td>
</tr>
<tr>
<td>SD</td>
<td>3.052</td>
<td>2.799</td>
<td>2.250</td>
<td>3.234</td>
</tr>
<tr>
<td>Sum of Squares</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>16.952</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>2021.711</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2038.663</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>16.952</td>
<td>3</td>
<td>5.651</td>
</tr>
<tr>
<td>Within Groups</td>
<td>2021.711</td>
<td>248</td>
<td>8.152</td>
</tr>
<tr>
<td>Total</td>
<td>2038.663</td>
<td>251</td>
<td></td>
</tr>
</tbody>
</table>

$F = .93^*$

* nonsignificant
TABLE 8

Z TEST FOR DIFFERENCES BETWEEN GROUP MEANS FOR THE VPI SOCIAL SCALE

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Career</th>
<th>Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>-7.510**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career</td>
<td>-5.514**</td>
<td>.602</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>-7.514**</td>
<td>-1.179</td>
<td>-1.505</td>
<td></td>
</tr>
</tbody>
</table>

** p ≤ .01
TABLE 9
BARTLETT'S TEST
(CHI SQUARE VALUES) FOR DIFFERENCES
BETWEEN GROUP VARIANCES FOR THE VPI
SOCIAL SCALE a

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Career</th>
<th>Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>.779</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career</td>
<td>1.507</td>
<td>.295</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>.756</td>
<td>.526</td>
<td>.149</td>
<td></td>
</tr>
</tbody>
</table>

aNo significant differences between variance were found on the Social scale.
As discussed later, only one of the three scales on Holland's test showed any significant group differences (Tables 8, 10 and 15, pages 67, 70 and 79.

Hypothesis IV  Women will score higher than men on the MC-SD scale.
See Table 12, page 72.
The null hypothesis cannot be rejected. Hypothesis IV was not supported.

Hypothesis V. Women will score higher than men on the I-E scale, i.e. women will be more externally controlled.
No significant differences were found between any of the groups on the I-E scale. See Table 13, page 73.
The null hypothesis cannot be rejected. Hypothesis V was not supported.

Hypothesis VI. Home oriented women will receive higher VPI Social scale scores than career oriented women.
No significant difference was found between the means of the VPI Social scale for home and career oriented women. See Table 2, page 61.
The null hypothesis cannot be rejected. Hypothesis VI was not supported.
TABLE 10
Z TEST FOR DIFFERENCES BETWEEN GROUP MEANS FOR THE VPI REALISTIC SCALE

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Career</th>
<th>Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>3.931**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career</td>
<td>3.906**</td>
<td>.453</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>3.874**</td>
<td>.196</td>
<td>-.2624</td>
<td></td>
</tr>
</tbody>
</table>

**p ≤ .01
### TABLE 11

**BARTLETT'S TEST**

*(CHI SQUARE VALUES) FOR DIFFERENCES BETWEEN GROUP VARIANCES FOR THE VPI REALISTIC SCALE*

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Career</th>
<th>Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>13.454***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career</td>
<td>12.39 ***</td>
<td>.455</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>19.279***</td>
<td>2.571</td>
<td>.632</td>
<td></td>
</tr>
</tbody>
</table>

*** $p \leq .001$
### TABLE 12
ANALYSIS OF VARIANCE BETWEEN GROUPS

SOCIAL DESIRABILITY SCALE SCORES

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Career Oriented Women</th>
<th>Home Oriented Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Group</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Sample Size</td>
<td>50</td>
<td>101</td>
<td>48</td>
<td>53</td>
</tr>
<tr>
<td>Mean</td>
<td>14.60</td>
<td>16.158</td>
<td>16.083</td>
<td>15.849</td>
</tr>
<tr>
<td>SD</td>
<td>4.056</td>
<td>5.226</td>
<td>5.410</td>
<td>4.877</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>88.72</td>
<td>3</td>
<td>29.574</td>
</tr>
<tr>
<td>Within Groups</td>
<td>6149.895</td>
<td>248</td>
<td>24.798</td>
</tr>
<tr>
<td>Total</td>
<td>6238.613</td>
<td>251</td>
<td></td>
</tr>
</tbody>
</table>

F = 1.193°

° nonsignificant
## TABLE 13

**ANALYSIS OF VARIANCE BETWEEN GROUPS**

**INTERNAL-EXTERNAL CONTROL SCALE SCORES**

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Career Oriented Women</th>
<th>Home Oriented Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Groups</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Sample Size</td>
<td>50</td>
<td>101</td>
<td>43</td>
<td>53</td>
</tr>
<tr>
<td>Mean</td>
<td>10.92</td>
<td>11.02</td>
<td>10.938</td>
<td>11.094</td>
</tr>
<tr>
<td>SD</td>
<td>4.393</td>
<td>4.171</td>
<td>4.25</td>
<td>4.138</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1.019</td>
<td>3</td>
<td>.34</td>
</tr>
<tr>
<td>Within Groups</td>
<td>4424.957</td>
<td>248</td>
<td>17.843</td>
</tr>
<tr>
<td>Total</td>
<td>4425.972</td>
<td>251</td>
<td></td>
</tr>
</tbody>
</table>

F = .019°

° nonsignificant
Hypothesis VII. Home oriented women will receive higher VPI Artistic scale scores than career oriented women.
No significant differences were found between the four groups on the VPI Artistic scale. See Table 3, page 62. The null hypothesis cannot be rejected. Hypothesis VII was not supported.

Hypothesis VIII. Home oriented women will receive lower VPI Realistic scale scores than career oriented women.
No significant difference was found between the means of the VPI Realistic scale for home oriented and career oriented women. See Table 4, page 63. The null hypothesis cannot be rejected. Hypothesis VIII was not supported.

Hypothesis IX. Home oriented women will receive higher MC-SD scale scores than either men or career oriented women.
No significant differences were found between any of the groups for the MC-SD scale scores. See Table 12, page 72. The null hypothesis cannot be rejected. Hypothesis IX was not supported.
Hypothesis X. Home oriented women will receive high, i.e. be more externally controlled, I-E scale scores than either men or career oriented women.

No significant difference was found between the groups for the I-E scale scores. See Table 13, page 73. The null hypothesis cannot be rejected. Hypothesis X was not supported.

Hypothesis XI through XV will be tested by correlational analysis (Pearsonian r). Results may be found in Table 14, page 76.

Hypothesis XI. Women with high MC-SD scores will receive high scores on the VPI Social scale.

No significant relationship was found between MC-SD scale scores and the VPI Social scale. See Table 14, page 76. Hypothesis was not supported.

Hypothesis XII. Women with high MC-SD scores will receive high scores on the VPI Artistic scale.

No significant relationship was found between the MC-SD scale scores and the VPI Artistic scale. See Table 14, page 76. Hypothesis XII was not supported.
TABLE 14

THE INTERRELATIONSHIP (PEARSON'S r) BETWEEN HOLLAND'S VOCATIONAL PREFERENCE INVENTORY AND SOCIAL DESIRABILITY AND INTERNAL-EXTERNAL CONTROL

<table>
<thead>
<tr>
<th></th>
<th>Social</th>
<th>Artistic</th>
<th>Realistic</th>
<th>Intellectual</th>
<th>Conventional</th>
<th>Enterprising</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD</td>
<td>.156</td>
<td>.006</td>
<td>-.059</td>
<td>.159</td>
<td>-.074</td>
<td>.057</td>
</tr>
<tr>
<td>I-E</td>
<td>-.03</td>
<td>.178*</td>
<td>.134</td>
<td>-.037</td>
<td>-.006</td>
<td>.052</td>
</tr>
</tbody>
</table>

* p ≤ .05
Hypothesis XIII. Women with high MC-SD scores will receive low VPI Realistic Scale scores.

No significant relationship was found between the MC-SD scale scores and the VPI Realistic scale. See Table 14, page 76.

Hypothesis XIII was not supported.

Hypothesis XIV. Women with low I-E scale scores, i.e. internally oriented, will receive low VPI Social scale scores.

No significant relationship was found between I-E scale scores and the VPI Social scale. See Table 14, page 76.

Hypothesis XIV was not supported.

Hypothesis XV. Women who receive low I-E scale scores, i.e. who are internally controlled, will receive high VPI Realistic scale scores.

No significant relationship was found between I-E scale scores and VPI Realistic scale scores. See Table 14, page 76.

Hypothesis XV was not supported.

Although not predicted, a significant relationship was found between internal-external control scores and the Artistic scale scores, with those interested in Artistic careers being externally oriented. See Tables 15 and 16, pages 79 and 80.
In summary, only two of the fifteen formal hypotheses were supported. These were that: 1) women would receive higher VPI Social scale scores than men; and 2) men would receive higher VPI Realistic scale scores than women.
## TABLE 15
Z Test for Differences Between Group Means for
The VPI Intellectual Scale

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Career</th>
<th>Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>2.452*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career</td>
<td>2.096*</td>
<td>-.060</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>2.119*</td>
<td>-.157</td>
<td>-.077</td>
<td></td>
</tr>
</tbody>
</table>

* $p \leq .05$
TABLE 16

BARTLETT'S TEST

(CHI SQUARE VALUES) FOR DIFFERENCES BETWEEN

GROUP VARIANCES FOR THE VPI INTELLECTUAL SCALE

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Career</th>
<th>Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>3.072</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career</td>
<td>1.391</td>
<td>.109</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>2.698</td>
<td>.208</td>
<td>.183</td>
<td></td>
</tr>
</tbody>
</table>

No significant differences between variances were found on the VPI Intellectual scale.
Discussion

One of the major hypotheses under consideration was that women may be overly classified in a few scales on the VPI scales because of personality variables which do not affect the men's responses to VPI items. The results of this study neither confirm nor refute this possibility. It can be said, however, that the locus of control variable and the need for social approval do not appear to be personality variables which affect VPI classification to an appreciable degree.

Several possibilities exist. First, the probability of a woman being classified as a particular type may be influenced by extraneous personality variables other than locus of control and need for social approval. Further research as to this possibility is needed. Secondly, the classification of women by Holland's inventory may correspond to the proportion of women in these categories in the total population. If this is true, it has several implications for the interpretation and application of Holland's theory. Since most women fall into only two categories of the VPI, it is unlikely that the personality types within these categories are sufficiently homogeneous to allow accurate predictions based upon the personality types suggested by Holland. Two conclusions may be drawn; either women's personality types cannot be predicted on the basis of their responses to vocational titles or subdivision within the vocational categories must be developed if more homogeneous personality categories are desired.
A second problem may be noted in the use of the VPI with college women. For women, career preference appears to have little effect upon career entry because so many other factors such as self image, husband's attitude and economic need influence whether or not a woman will actually work after marriage. In spite of the failure to find significant differences between the male and female groups on three of the six scales, Conventional, Enterprising and Artistic, it cannot be assumed that these scales are equally predictive of either career entry or major field stability. Further research in this area is needed.

In summary it appears that the problem with using the VPI with women arises from nonstatistical factors. a) Career preference affect career entry to a different degree for men and women. b) The majority of women fall into the least predictive VPI category (See Holland, 1966). c) The personality descriptions derived from the vocational typing are not equally descriptive for men and women because the groups within these categories are not equally homogeneous.

The Realistic scale of the VPI deserves special attention. This was the only scale for which differences between both means and variances were found to significantly differ for the male and female samples. A review of the means of this scale show it to have an extremely low means especially for women. (See Table 4, page 63.) An inspection of the item content raises the question as to its usefulness for college samples. 1) Scale items include career titles that have low status values. 2) Most occupa-
tions included in this scale either do not require college training, e.g. filling station attendant, or require technical or union training, e.g. master plumber. 3) Occupations included in this scale likely have little appeal for most women and most have been traditionally closed to women.

It should be noted in regard to the Realistic scale scores for this sample that students majoring in engineering, business and agriculture were under-represented in the study and the mean scores of the Realistic, Conventional and Enterprising scales may be somewhat too low for that reason.

The similarity between the intercorrelations between VPI scales of this study and those reported by Holland (1965) suggest that the relationship between scale scores has remained fairly stable over the years or that this sample response was representative of the national sample. (See Table 17, page 85.) Again, this finding suggests that this sample of this study responded similarly to other college freshmen.

No significant relationship was found between the MC-SD scale scores and any of the VPI scale scores. Only one of the VPI scale scores was found to be significantly correlated with locus of control: the Artistic scale (see Table 14, page 76). This finding supports the contention that those receiving high Artistic scale scores are externally controlled. As previously discussed one possible explanation is that externally oriented persons are attracted to careers in which success is unlikely because there is low demand for the services or products and luck is an important
ingredient for success, e.g. popular musicians.

Great caution must be taken in accepting this interpretation. The correlation between the I-E scale and the VPI Artistic scale only accounts for less than four percent of the total variance. Moreover, the actual relationship may be closer to zero since there is a possibility that the relationship may be nonlinear as is the relationship between the Rotter Incomplete Sentence Blank and the I-E scale (Rotter, 1962).

Locus of Control and Social Desirability

A correlation of \(-.29, p \leq .01\) was found between the I-E scale scores and the \(MC-SD\) scale scores. This correlation falls within the range of correlations between the two variables found in previous research (See Rotter, 1962).

Although the mean scores for this sample on the \(MC-SD\) scale scores falls within the range previous found in other research (Crowne & Marlowe, 1964), the difference between the mean scores for this sample on the I-E scale and those previously found by other investigators deserves attention. The mean I-E scale score for this sample was 10.92. This mean exceed the mean for any previously reported group (See Rotter, 1962). One possible explanation for this finding might be revealed by the item content of the I-E scale. The I-E scale appears to contain two types of items, those relating to the individual's influence on government and those relating to the individual's control over his more personal life.
TABLE 17

THE INTERRELATION BETWEEN HOLLAND'S

VOCATIONAL PREFERENCE INVENTORY SCALE SCORES

<table>
<thead>
<tr>
<th></th>
<th>Realistic</th>
<th>Intellectual</th>
<th>Social</th>
<th>Conventional</th>
<th>Enterprising</th>
<th>Artistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Realistic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intellectual</td>
<td>.426**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td>-.144</td>
<td>.043</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conventional</td>
<td>.136</td>
<td>-.017</td>
<td>.068</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enterprising</td>
<td>.107</td>
<td>-.026</td>
<td>.221**</td>
<td>.548**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artistic</td>
<td>.032</td>
<td>.147</td>
<td>.373**</td>
<td>-.055</td>
<td>.246**</td>
<td></td>
</tr>
</tbody>
</table>

** p ≤ .01
<table>
<thead>
<tr>
<th></th>
<th>Enterprising</th>
<th>Conventional</th>
<th>Intellectual</th>
<th>Realistic</th>
<th>Artistic</th>
<th>Social</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEN</td>
<td>3.0</td>
<td>2.5</td>
<td>4.6</td>
<td>2.7</td>
<td>4.0</td>
<td>3.7</td>
</tr>
<tr>
<td>SD</td>
<td>2.0</td>
<td>1.8</td>
<td>3.9</td>
<td>3.0</td>
<td>3.3</td>
<td>3.0</td>
</tr>
<tr>
<td>MEN</td>
<td>2.6</td>
<td>2.5</td>
<td>3.1</td>
<td>2.7</td>
<td>3.3</td>
<td>3.0</td>
</tr>
<tr>
<td>SD</td>
<td>1.8</td>
<td>2.8</td>
<td>3.2</td>
<td>1.1</td>
<td>4.4</td>
<td>4.4</td>
</tr>
<tr>
<td>MEN</td>
<td>2.4</td>
<td>2.4</td>
<td>2.9</td>
<td>1.6</td>
<td>4.2</td>
<td>6.3</td>
</tr>
<tr>
<td>SD</td>
<td>1.8</td>
<td>2.9</td>
<td>3.6</td>
<td>2.1</td>
<td>5.8</td>
<td>3.8</td>
</tr>
<tr>
<td>MEN</td>
<td>2.5</td>
<td>2.5</td>
<td>1.8</td>
<td>4.6</td>
<td>3.9</td>
<td>4.5</td>
</tr>
<tr>
<td>SD</td>
<td>3.0</td>
<td>2.7</td>
<td>3.5</td>
<td>3.8</td>
<td>3.6</td>
<td>3.7</td>
</tr>
<tr>
<td>MEN</td>
<td>3.5</td>
<td>3.5</td>
<td>2.7</td>
<td>3.8</td>
<td>3.6</td>
<td>3.6</td>
</tr>
<tr>
<td>SD</td>
<td>3.8</td>
<td>3.5</td>
<td>3.0</td>
<td>2.8</td>
<td>3.7</td>
<td>8.1</td>
</tr>
<tr>
<td>MEN</td>
<td>2.9</td>
<td>2.9</td>
<td>3.0</td>
<td>3.9</td>
<td>4.3</td>
<td>3.7</td>
</tr>
<tr>
<td>SD</td>
<td>2.8</td>
<td>2.7</td>
<td>3.5</td>
<td>2.7</td>
<td>5.9</td>
<td>3.0</td>
</tr>
<tr>
<td>WOMEN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A comparison of the means and standard deviations of the tested sample and Holland's national norms.
The elevated means may reflect the increasing pessimism of college students over their ability to influence government. Studies are underway to test this hypothesis.

Suggestions for Further Research

Several recommendations for further research have been made. These include:

1. The study of the possibility of sub-dividing those VPI scales which include too many types of women, i.e. the Social and Artistic scales.

2. The study of the predictive validity of the VPI for women. These studies should include the prediction of major field and career entry.

3. The study of the possibility of changing career titles of the VPI Realistic scale to items which have greater appeal for college students and women.

4. An investigation of the linearity of the relationship between the I-E scale and the VPI Artistic scale and the I-E scale and the MC-SD scale.

Other recommendations may also be made. The failure to find significant differences between the career and home oriented women may be accounted for in several ways.
1. The Career Commitment Form may not be a significantly refined device for distinguishing between the groups.

2. All women were enrolled in college. The groups may be too young and/or too homogeneous on other factors to distinguish between the two types of women.

3. The differences between the careers included in the Social and Artistic which are related to difference between orientations are masked by equal weighting. That is to say, for example, careers which require graduate education receive the same weight as careers not requiring college education. Therefore, need achievement, a possible distinguishing characteristic is not controlled.

Future research might include the investigation of differences in response to the VPI between women 30 to 40 years old who are actually homemakers or who are employed. Such information might be used to predict career entry. Secondly, items might be weighted according to either status or educational level. Such information might be used to refine the personality type descriptions.
CHAPTER V
SUMMARY

The purpose of this investigation was to determine the effects of the need for social approval and locus of control upon the classification of men, women, career oriented women and home oriented women by Holland's Vocational Preference Inventory.

Past psychological theorizing and research about the psychology of women has produced woefully inadequate information. Educational and vocational planning for women is becoming increasingly important. Traditional methods of planning do not appear to be very helpful to women since most are faced with intermittent careers. Holland's test was selected as a vocational instrument for study because it provides an alternative approach to career planning, i.e. the test provides type or area scores such as Artistic or Conventional rather than career titles. Social desirability was selected as a personality variable because it was believed that this factor might be influential in a woman's positive response to traditional fields of employment for women and hence influence the distribution of women in the Holland scale categories. Locus of control was selected as a personality variable because past research had indicated that externally oriented persons were passive and had a low need for achievement. It was thought that since these characteristics were des-
criptive of the traditional feminine role, subjects who were externally controlled should be interested in the more traditionally feminine occupations (see Zykowski, 1967). Locus of control then would influence classification on Holland's inventory.

Two hundred fifty subjects were administered the Marlowe-Crowne Social Desirability scale, the Rotter Internal-External Control scale, Holland's Vocational Preference Inventory, the Personal Data Sheet and the Career Commitment Form. Testing was conducted in groups of between twelve and twenty persons during the fourth and seventh weeks of an eleven week fall quarter at the Ohio State University. Subjects were eighteen and nineteen year old freshmen enrolled in an introductory psychology course. The experimental participation was a part of their regular course requirement. A final sample of one hundred fifty-one subjects, fifty men and one hundred one women of which forty-eight were career oriented and fifty-three were home oriented, were chosen by eliminating incomplete or unresponsive questionnaires.

Two kinds of statistical analysis were performed: an analysis of variance to test for differences between groups and a table of intercorrelations to determine the relationship between variables. The analysis of variance was followed by \( z \) tests to test for differences between means and by Bartlett's test for homogeneity of variance. The correlations were tested for significance by the use of the Student's \( t \) test.
Two of the fifteen formal hypotheses were supported. These were that women would score higher than men on the VPI Social scale and that men would score higher than women on the VPI Realistic scale.

No significant differences were found between career and noncareer oriented women on any of the VPI vocational scales.

No significant relationship was found between the MC-SD scale scores and any of the VPI vocational scales.

A significant relationship (.179, p ≤ .05) was found between the I-E scale scores and only the VPI Artistic scale. This relationship, while significant, accounts for less than four percent of the total variance and may in fact be nonsignificant due to a possible nonlinear relationship between the scales.

The relationship between the MC-SD scale scores and the I-E scale scores was found to be -.29. This relationship falls within the range reported by Rotter (1962) of the interrelationship of these scales found in earlier studies.

While the mean of the MC-SD scores of this sample falls within the range reported by Marlowe and Crowne (1964) the mean I-E scores of this sample exceeds those of earlier studies. An increasing pessimism toward the individual's ability to influence government was given as a possible explanation for the higher mean of the I-E scores of this sample.

A comparison of the means and standard deviations, and intercorrelations between the VPI vocational scale scores indicated that the sample
used in this study approximately the national norms for Holland's Vocational Preference Inventory and that the interrelationship between the scales for each group were approximately the same.

The conclusion was reached that even if the women's scale scores represent the proportion of women in each vocational type in the population, the inventory cannot be used to determine personality type since too many women fall into too few categories and hence the vocational groups are too heterogeneous in respect to personality for accurate prediction.

Future research was proposed to further subdivide the Social and Artistic scale in order to create more homogeneous personality type groups.

Failure to find differences between the career oriented and home oriented women's group was attributed to: a) insufficiently refined discriminatory career orientation instruments; b) homogeneity of the college sample; c) failure of the VPI to distinguish between status and educational level requirements of vocations within the sample categories. Further research was suggested to develop more accurately discriminating career vs. home orientation tests.
APPENDIX A

THE VOCATIONAL PREFERENCE INVENTORY
THE VOCATIONAL PREFERENCE INVENTORY

Developed by John L. Holland, Ph.D.

This is an inventory of your feelings and attitudes about many kinds of work. Fill out your answer sheet by following the directions given below:

1. Show on your answer sheet the occupations which interest or appeal to you by blackening Y for "Yes".

2. Show the occupations which you dislike or find uninteresting by blackening N for "No".

3. Make no marks when you are undecided about an occupation.

1. Aviator
2. Private Investigator
3. YMCA Secretary
4. Detective
5. Post Office Clerk
6. Route Salesman
7. Electronic Technician
8. Humorist
9. Photographer
10. Interplanetary Scientist
11. Airplane Mechanic
12. Meteorologist
13. Foreign Missionary
14. Bookkeeper
15. Speculator
16. Poet
17. Deep Sea Diver
18. Newspaper Editor
19. Nursery School Teacher
20. Lawyer
21. Fish and Wildlife Specialist
22. Biologist
23. High School Teacher
24. Quality Control Expert
25. Buyer
26. Symphony Conductor
27. Wrecker (Building)
28. Narcotics Inspector
29. Elementary School Teacher
30. School Principal
31. Power Station Operator
32. Astronomer
33. Juvenile Delinquency Expert
34. Budget Reviewer
35. Stock & Bond Salesman
36. Musician
37. Prize Fighter
38. Diplomat
39. Experimental Laboratory Engineer
40. Crane Operator
41. Master Plumber
42. Aeronautical Design Engineer
43. Speech Therapist
44. Traffic Manager
45. Manufacturer's Representative
46. Author
47. Fireman
48. Army General
49. Interior Decorator
50. Novelist
51. Power Shovel Operator
52. Anthropologist
53. Marriage Counselor
54. Statistician
55. Television Producer
56. Commercial Artist
57. Wild Animal Trainer
58. U.N. Official
59. Sculptor
60. Automobile Mechanic
61. Surveyor
62. Zoologist
63. Physical Education Teacher
64. Court Stenographer
65. Hotel Manager
66. Free-Lance Writer
67. Stunt Man (Motion Picture)
68. Criminal Lawyer
69. Professional Athlete
70. Carpenter
71. Construction Inspector
72. Chemist
73. Playground Director
74. Bank Teller
75. Business Executive
76. Musical Arranger
77. Jockey
78. Ventriloquist
79. Army Officer
80. Banker
81. Radio Operator
82. Independent Research Scientist
83. Clinical Psychologist
84. Tax Expert
85. Restaurant Worker
86. Art Dealer
87. Motorcycle Driver
88. Police Judge
89. Referee (Sporting Events)
90. Truck Gardener
91. Filling Station Attendant
92. Writer of Scientific or Technical Articles
93. Social Science Teacher
94. Inventory Controller
95. Master of Ceremonies
96. Dramatic Coach
97. Blaster (Dynamiter)
98. Mind Reader
99. English Teacher
100. Sales Manager
101. Tree Surgeon
102. Editor of a Scientific Journal
103. Director of Welfare Agency
104. IBM Equipment Operator
105. Traveling Salesman
106. Concert Singer
107. F.B.I. Agent
108. Prosecuting Attorney
109. Factory Foreman
110. College Professor
111. Tool Designer
112. Geologist
113. Asst. City School Superintendent
114. Financial Analyst
115. Real Estate Salesman
116. Composer
117. Mountain Climber
118. Congressional Investigator
119. Portrait Artist
120. Machinist
121. Locomotive Engineer
122. Botanist
123. Personal Counselor
124. Cost Estimator
125. Industrial Relations Consultant
126. Stage Director
127. Explorer
128. Supreme Court Judge
129. Draftsman
130. Judge
131. Photoengraver
132. Scientific Research Worker
133. Psychiatric Case Worker
134. Pay Roll Clerk
135. Sports Promoter
136. Playwright
137. Test Pilot
138. Criminologist
139. Children's Clothing Designer
140. Truck Driver

141. Electrician
142. Physicist
143. Vocational Counselor
144. Bank Examiner
145. Political Campaign Manager
146. Cartoonist
147. Racing Car Driver
148. Book Censor
149. Social Worker
150. Locksmith

151. Funeral Director
152. Counter-Intelligence Man
153. Architect
154. Shipping & Receiving Clerk
155. Criminal Psychologist
156. Insurance Clerk
157. Barber
158. Bill Collector
159. Ward Attendant
160. Masseur
QUESTIONNAIRE

Personal Reaction Inventory

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally.

T  F  1. Before voting I thoroughly investigate the qualifications of all the candidates.

T  F  2. I never hesitate to go out of my way to help someone in trouble.

T  F  3. It is sometimes hard for me to go on with my work if I am not encouraged.

T  F  4. I have never intensely disliked anyone.

T  F  5. On occasion I have had doubts about my ability to succeed in life.

T  F  6. I sometimes feel resentful when I don't get my way.

T  F  7. I am always careful about my manner of dress.

T  F  8. My table manners at home are as good as when I eat out in a restaurant.

T  F  9. If I could get into a movie without paying and be sure I was not seen I would probably do it.

T  F  10. On a few occasions, I have given up doing something because I thought too little of my ability.

T  F  11. I like to gossip at times.
T F 12. There have been times when I felt like rebelling against people in authority even though I knew they were right.

T F 13. No matter who I'm talking to, I'm always a good listener.

T F 14. I can remember "playing sick" to get out of something.

T F 15. There have been occasions when I took advantage of someone.

T F 16. I'm always willing to admit it when I make a mistake.

T F 17. I always try to practice what I preach.

T F 18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people.

T F 19. I sometimes try to get even rather than forgive and forget.

T F 20. When I don't know something I don't at all mind admitting it.

T F 21. I am always courteous, even to people who are disagreeable.

T F 22. At times I have really insisted on having things my own way.

T F 23. There have been occasions when I felt like smashing things.

T F 24. I would never think of letting someone else be punished for my wrong-doings.

T F 25. I never resent being asked to return a favor.

T F 26. I have never been irked when people expressed ideas very different from my own.

T F 27. I never make a long trip without checking the safety of my car.

T F 28. There have been times when I was quite jealous of the good fortune of others.

T F 29. I have almost never felt the urge to tell someone off.

T F 30. I am sometimes irritated by people who ask favors of me.

T F 31. I have never felt that I was punished without cause.
T F 32. I sometimes think when people have a misfortune they only get what they deserved.

T F 33. I have never deliberately said something that hurt someone's feelings.
APPENDIX C

ROTTER INTERNAL-EXTERNAL CONTROL SCALE
I more strongly believe that:

1. a. Children get into trouble because their parents punish them too much.
   b. The trouble with most children nowadays is that their parents are too easy with them.

2. a. Many of the unhappy things in people's lives are partly due to bad luck.
   b. People's misfortunes result from the mistakes they make.

3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.
   b. There will always be wars, no matter how hard people try to prevent them.

4. a. In the long run people get the respect they deserve in this world.
   b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

5. a. The idea that teachers are unfair to students is nonsense.
   b. Most student's don't realize the extent to which their grades are influenced by accidental happenings.

6. a. Without the right breaks one cannot be an effective leader.
   b. Capable people who fail to become leaders have not taken advantage of their opportunities.

7. a. No matter how hard you try some people just don't like you.
   b. People who can't get others to like them don't understand how to get along with others.

8. a. Heredity plays the major role in determining one's personality.
   b. It is one's experiences in life which determine what they're like.
I more strongly believe that:

9 a. I have often found that what is going to happen will happen.

b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

10 a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.

b. Many times exam questions tend to be so unrelated to course work, that studying is really useless.

11 a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.

b. Getting a good job depends mainly on being in the right place at the right time.

12 a. The average citizen can have an influence in government decisions.

b. This world is run by the few people in power, and there is not much the little guy can do about it.

13 a. When I make plans, I am almost certain that I can make them work.

b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14 a. There are certain people who are just no good.

b. There is some good in everybody.

15 a. In my case, getting what I want has little or nothing to do with luck.

b. Many times we might just as well decide what to do by flipping a coin.

16 a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.

b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.
I more strongly believe that:

17 a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.

b. By taking an active part in political and social affairs the people can control world events.

18 a. Most people don't realize the extent to which their lives are controlled by accidental happenings.

b. There really is no such thing as "luck".

19 a. One should always be willing to admit his mistakes.

b. It is usually best to cover up one's mistakes.

20 a. It is hard to know whether or not a person really likes you.

b. How many friends you have depends upon how nice a person you are.

21 a. In the long run the bad things that happen to us are balanced by the good ones.

b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22 a. With enough effort we can wipe out political corruption.

b. It is difficult for people to have much control over the things politicians do in office.

23 a. Sometimes I can't understand how teachers arrive at the grades they give.

b. There is a direct connection between how hard I study and the grades I get.

24 a. A good leader expects people to decide for themselves what they should do.

b. A good leader makes it clear to everybody what their jobs are.
I more strongly believe that:

25 a. Many times I feel that I have little influence over the things that happen to me.
    b. It is impossible for me to believe that change or luck plays an important role in my life.

26 a. People are lonely because they don't try to be friendly.
    b. There's not much use in trying too hard to please people, if they like you, they like you.

27 a. There is too much emphasis on athletics in high school.
    b. Team sports are an excellent way to build character.

28 a. What happens to me is my own doing.
    b. Sometimes I feel that I don't have enough control over the direction my life is taking.

29 a. Most of the time I can't understand why politicians behave the way they do.
    b. In the long run the people are responsible for bad government on a national as well as on a local level.
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UNIVERSITY MICROFILMS.
Name __________________________

1. College ___________ 2. Rank_________ 3. Age ___

4. Father's occupation ___________________________________________

5. Mother's occupation ___________________________________________

6. What are your career plans? ______________________________________

7. When did you make this choice? ________________________________

8. Do you plan to go to graduate school?
   a) yes
   b) no

9. If yes, do you plan to receive:
   a) Masters degree
   b) PhD degree
   c) professional school (e.g. Law or medicine)

WOMEN ONLY answer questions #10 and #11:

10. Ten years from now which of the following would you prefer? (Do NOT consider your possible economic or marital status)
   a) housewife or unpaid community service
   b) part-time employment
   c) full-time employment

11. Check on the following scale how attractive each of the following alternatives are to you.

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### Full-time employment
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