CAREER MATURITY, WORK VALUES, AND LIFE SATISFACTION AMONG THE INDUSTRIAL INJURED

By

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This study investigated the relationships among career maturity, work values, life satisfaction and a return to work of persons after an industrial injury. The central question examined was whether or not differences exist in career maturity, work values and life satisfaction between those persons returning to work (Group I) and those not returning to work (Group II).

The relationship between mean scores developed on the Work Values Inventory (WVI), the Adult Vocational Maturity Inventory (AVMI), and the Life Satisfaction Index A (LSIA), and race, sex, age, and education was assessed as well. One hundred forty-nine subjects were involved in the study.

The mean scores for each of the 15 WVI scales were calculated for Group I and Group II separately and a t test was used to determine significant differences between the scores of those returning to work and

those not returning. Throughout the data analysis the significance level was set at .05. The results of the AVMI and the LSIA were also analyzed, utilizing a t test to determine significant mean differences. The relationships among the variables of age, education, sex, race, and scores on the AVMI, WVI, and LSIA were determined using an analysis of variance procedure.

The results indicated a significant difference in mean values obtained on scales 6 (independence), 12 (supervisory relations), and 15 (variety) of the WVI. No significant group differences on the AVMI were noted. A significant difference between Groups I and II on the LSIA was noted as well. Because the LSIA was administered to some members of Group I after they had become re-employed it was difficult to assess whether or not significant mean differences on the LSIA would have predicted group membership.

The study further showed that race, sex, age, and education do influence specific scales on the WVI and the AVMI.

The study concluded that independence, supervisory relations, and variety of the WVI represented the only significant differences between groups. Although additional research is suggested, this information represents a starting point in the effort to develop predictive variables for group membership.

CHAPTER I
INTRODUCTION

The increasing number of industrial injuries occurring each year is resulting in a growing population of permanently disabled individuals. Many return to productive lives in the labor market, while others find it difficult to re-enter the market even after reaching maximum medical improvement. Although representing less than 10% of the industrial injured population (Gresham, Note 1), those not returning to work consume the bulk of funds spent on Worker's Compensation claimants. These clients represent a unique challenge to the rehabilitation counselor, and their rising number dictates the need for exploration of their problems.

Attempts have been made to study the accident process in industrial injuries and identify variables contributing to delayed recovery (Hirschfeld & Behan, 1963). Specific behavioral patterns relative to this process have been identified, defined and documented (Brodsky, 1970; Enelow, 1968; Hirschfeld & Behan, 1963) with a view toward developing predicted psychological variables. May (1974) attempted to relate 80 demographic variables to the disability process in the hopes of developing predictive variables which would allow for early identification of those individuals who would be slow to return to work. Although much of this research did reveal definite patterns,

no predictive variables were isolated. The concentration has been on psychological and demographic data, with little attention paid to vocational aspects; yet this would seem a logical area to research.

Neff (1968) speaks of work identity and its role in self-concept. He views a person's job or career as an integral part of self-image and personal development. A sudden loss of career through psychological or physical disability leaves a void difficult to fill. It is at this point that career counseling and vocational guidance must be brought into play. It is insufficient to concentrate on client interests, skills and aptitudes alone. Vocational maturity and work values, two individual characteristics receiving much attention of late, may also play an important role in the accident process.

Vocational maturity is described as a

> developmental characteristic which increases with age, is multidimensional in nature, develops at different rates in different individuals and can help in the prediction of occupational satisfaction, occupational success and career success. (Super & Jordaan, 1973, p. 3)

It is defined more specifically as a

> readiness to cope with the developmental tasks of one's life stage, to make socially required career decisions and to cope appropriately with a task with which society confronts a developing youth and adult. (Super & Jordaan, 1973, p. 5)

It is this researcher's experience that making career decisions and coping with the developmental tasks is often difficult for the industrial injured worker. The inability to demonstrate effective levels of vocational maturity may be a predictor of delayed return to work injury.

Similarly, work values may also be an important career counseling tool. A better understanding of client needs and values allows for

identification of more satisfying career alternatives. Tolbert (1974, p. 19) refers to values as "an individual's source of satisfaction." Super (1970) discusses values in greater detail. Values, both extrinsic and intrinsic to work, are considered important.

These constructs have been given a great deal of review in recent years (Breme & Cockriel, 1975; Hurt & Holen, 1976) and have been the subject of some research (Crane, 1977; Keith, 1977). Research which examines the relationship among work values, career maturity and return to work of the industrial injured can be of significant importance in the career counseling process with these individuals. Another important component which may be added to this research is an assessment of the differences in life satisfaction ratings provided by members of Group I (return to work) and Group II (no return to work). Identifying predictors of delayed return to work has particularly significant applications for both the counseling process as well as early intervention of vocational rehabilitation services. Unfortunately, no research concerning itself with these variables and the Worker's Compensation population has been located.

Purpose

The purpose of this study was to identify the levels of career maturity, choice of work values, and life satisfaction ratings of those industrial injured returning to work and those not re-entering the labor market in order that some predictive variables might be developed. Early assessment of clients who may have difficulty returning to the labor market after industrial injury will allow for early intervention techniques to be utilized so that future vocational

potential can be enhanced. The study specifically examined the relationships among vocational maturity, work values, life satisfaction, and a return to work after industrial injury. It also investigated the relationships among career maturity, work values, life satisfaction, age, sex, level of education, and race.

Rationale for Study

The number of persons involved in industrial injuries has increased significantly in recent years. During the year 1975, 401,219 industrial injuries occurred in the State of Florida (Gresham, Note 1). Kennedy (note 2), in his study of the industrial injured, classified the primary cause of disability as not physical in 83% of the cases. The literature supports the contention that the disability process involves the whole person and not merely the physical aspects of injury. Gresham (Note 1) discusses this process and the work of Derozier (Note 3) and describes the disability not as a static condition but as "an evolutional process in which the whole man is involved" (Gresham, Note 1, p. 9). This concern for the whole person is an important concept in understanding the rehabilitation process of the injured worker. Many studies have considered the psychological impact of injury on the individual (Capon, 1951; Schaffer, Nussbaum, & Little, 1972; McKay, Note 4), but none of those reviewed has considered career maturity or work values as a function of the return to employment.

An integral part of the rehabilitation effort with the disabled is identifying alternative career choices. Added to the career development process is the need to identify jobs which meet an individual's physical needs. The importance of career maturity and the ability to

differentiate among work values become important. The disabled worker often finds it necessary to go through a new career development process in a short period of time and, in this researcher's experience, although some are successful, many fail or never even get started.

The career counseling needs of these individuals require special attention. The paucity of definitive research in this area has resulted in a lack of positive advances. The limited research on career development and career decision making in the rehabilitation literature suggests that little is being done in this area with the industrial injured. It would seem that injured workers who do complete the process of locating alternative career choices are better equipped to handle career decision making. The suggestion is made that differences in career maturity and work values do play a part in whether or not the injured worker returns to the labor market.

Before an exploration of differences in career maturity and work values can be undertaken, a better understanding of their role in career decision making is necessary. To better understand career decision making requires that a specific theory of career choice be used as a central orientation for this study. As the developmental theory of career choice is widely accepted (Miller, 1974; Sheppard, 1971; Walls & Gulkus, 1974), it will provide the base for theory and terminology.

The developmental view of occupational choice and career decision making treats vocational development as a continuum (Ginzberg, Ginzberg, Axelrad, & Herma, 1951). This process takes place over a lengthy period of time and culminates with vocational choice. Vocational maturity then becomes a point on the continuum which identifies

a level of development achieved by the individual (Walls & Gulkus, 1974). This development process, occurring from early childhood through adulthood, is influenced by self-concept formation and exploration. The individual is described as "making not one, but a series of related decisions which determine his career pattern" (Westbrook & Cunningham, 1970, p. 171). The various developmental states through which an individual passes, combined with this series of related decisions, form the basis for career choice.

Career maturity then becomes an integral part of the developmental process. The concept of career maturity implies a continuous process rather than a single decision making event (Westbrook & Cunningham, 1970). Super (1955) suggested the dimensions along which this type of development occurred, denoting orientation to vocational choice, crystallization of traits, information and planning, consistency of vocational preferences and the wisdom of vocational preferences. The concept of career maturity assumes a greater dimension than that of vocational choice in that it also involves attitudes toward decision making, understanding of job requirements, planning activities and development of vocational capabilities (Westbrook & Cunningham, 1970). Career maturity influences vocational choice, resulting in more goal-directed, realistic and independent vocational behavior as an individual ages (Super & Overstreet, 1960). If then, as Strong (1955) and Super (1957) suggest, vocational behavior changes systematically with age, measuring career maturity can provide meaningful insight into an individual's development.

Another integral concept in the developmental theories of career choice is the satisfaction of needs. Central to need satisfaction is

the theory of work values. Zytowski (1970) defines work values as "a set of concepts which mediate between the person's affective orientation and classes of external objects offering similar satisfactions" (Zytowski, 1970, p. 176). A person's work values can be viewed as needs and their satisfaction provides important motiavtion in the career choice process. Recognizing what is valued about a specific occupation provides important insight into alternative careers offering similar satisfactions. Expressed interests are differentiated from work values in that the former help determine the direction of job choice, while the latter affects the degree of satisfaction derived from a specific job (Ivey, 1963). It is a discrimination between alternative employment which is meaningful, holds a person's interest and satisfies needs. Conversely, an inability to discriminate may lead to trial-and-error career decisions, minimal satisfaction, and poor employment potential.

The importance of work values in career choice is expressed in the original work of Super (1957) and Ginzberg et al. (1951) on career development theory. These values are described as being related to need satisfaction and, therefore, central to career choice theory. Career maturity and work values clearly play a significant role in career decision making. The ability to demonstrate career maturity and discriminate among work values leads to better job choice and job stability, factors which could lead to improved rehabilitation potential for the industrial injured.

Statement of Problem

This study investigated the relationships among career maturity, work values and a return to employment after industrial injury. The central question was whether or not differences exist in career maturity and work values between those injured persons returning to work (Group I) and those not returning to work (Group II).

Group I consisted of 75 industrial injured workers suffering severe enough impairments to have been assigned permanent physical restrictions, but not exceeding a 25% anatomical impairment as assigned by two independent medical examiners based on the American Medical Association's Guide to the Evaluation of Permanent Impairments. These workers returned to work within 26 weeks after reaching maximum medical improvement. Group II consisted of 74 industrial injured workers suffering severe enough impairments to have been assigned permanent physical restrictions without exceeding a 25% anatomical impairment rating as assigned by two independent medical examiners based on the American Medical Association's Guide to Evaluation of Permanent Impairments. These workers did not return to work within 26 weeks after reaching maximum improvement.

Specific questions answered by this study were

1. Do members of Group I differ from those in Group II in their respective levels of career maturity?

2. Do members of Group I differ from those in Group II in their work values?

3. Do members of Group I differ from those in Group II in life satisfaction?

4. Is there a relationship between career maturity and age, sex, and level of education?

5. Is there a relationship between work values and age, sex, and level of education?

6. Is there a relationship between career maturity and race?

7. Is there a relationship between work values and race?

Definition of Terms

The following definition of terms is applicable in this study:

Career maturity is used interchangeably with the term vocational maturity

Competitive labor market is that employment situation in which an individual receives competitive remuneration and maintains standards of quality and quantity set for all other employees

Entry level employment are those jobs requiring no more than an eighth grade education and 30 days to 3 months of on-the-job experience

Maximum medical improvement is that point at which the medical doctor indicates no further definitive medical treatment will result in any further improvement in an individual's condition

Rehabilitation process is the provision of medical, psychological and vocational counseling and guidance services necessary to return the injured individual to his/her maximum level of productive functioning

Vocational maturity in this study is defined using Super (1957) as a basis. Vocational maturity is one's method of performing vocational development tasks and is related to five dimensions including (a) orientation to vocational choice, (b) information and

planning, (c) consistency of vocational preferences, (d) crystallization of traits, and (3) wisdom of vocational preferences.

CHAPTER II
REVIEW OF RELATED LITERATURE

The review of literature is presented in four sections. These include (a) the disability process and the industrial injured; (b) vocational development and the industrial injured; (c) work values; and (d) career maturity.

The Disability Process and the Industrial Injured

Compensable injuries resulting from industrial accidents have consistently been resistant to rehabilitation intervention. Traditionally, medical treatment is provided relative to the specific physical trauma but other variables involved in the disability process remain untouched. The existence of an actual accident process in which psychological, social, and work factors are considered along with physical factors is explained by Hirschfeld and Behan (1963). They review the process as a continuum along which the accident is only a single event. Pre- and post-accident behavior patterns, along with social and vocational factors, provide important clues to rehabilitation needs. Other factors which influence behavior include legal and compensation consideration.

Hirschfeld and Behan (1963) researched the accident process using 300 cases of industrial accidents and injuries. The study revealed that physical injury resulted from a psychological process which can be

defined and documented. In many instances physical symptoms are a manifestation of psychological, social and vocational factors. Treating the physical trauma and leaving other variables untouched frequently leads to chronicity which is subsequently reinforced by compensation. Enelow (1968), utilizing a similar sample (300 industrial injured individuals), supports these findings. He cites four basic factors which he considers as influences in the accident process. These include (a) the psychology of the worker, (b) the social context in which the accident occurs, (c) psycho-social aspects of treatment, and (d) the quality of administration of the disability claim.

Pervasive in each of the factors delineated in these research projects are vocational influences or the meaning of work. As cited earlier, Neff (1968) considers work and worker identity as important components in the development of self-image and personal identity. Hirschfeld and Behan (1963) elaborate on this concept in their research. Work is considered as having multiple meaning to the individual. It makes life more purposeful, provides socialization, gives the worker a sense of identification and fills a void for individuals who otherwise have nothing to do.

The majority of the population discussed by Hirschfeld and Behan demonstrate few hobbies or leisure time activities outside of work and frequently find their social lives, post-accident, restricted to immediate family. Enelow (1968) characterizes the same population as depressed, often suggestible (hysterical-personality types), dependent and immature. As time off work increases and dependency is prolonged, a return to work becomes a more difficult goal to obtain.

Rehabilitation becomes possible only by "finding the patient a new, less taxing and more satisfying occupation" (Enelow, 1968, p. 684).

Brodsky (1970) examined 150 industrial injured persons who had a delayed recovery after injury. This population was characterized by several factors including the following: (a) the patient was receiving or seeking compensation as a result of a work related injury; (b) the symptoms and disability had existed for at least one year; (c) specialists argued that no physical illness existed or symptoms existed which exceeded objective medical findings; and (d) the patient's complaints, behavior, appearance, and physical activity were inconsistent with the symptoms. Although only one variable is studied in detail (antecedent sexual dysfunction), numerous others are identified as influences. These include social-psychological parameters, education, vocational history and socioeconomic status. Psychiatric examinations were conducted on each individual as several important descriptors of this population were reviewed. A passive-dependent and passive-aggressive personality type is used to characterize the population. Brodsky further notes "they saw themselves as victims of background and chance, and they drifted from one place to another, and one job to another unable to or unwilling to try and structure their lives or alter their courses" (Brodsky, 1970, p. 301).

In continuing research, Brodsky (1971) examined an additional 200 industrial injured, meeting the same criteria as reflected in the 1970 study. A more detailed examination of the accident process was undertaken and findings discussed in earlier studies were substantiated. The patient was described as having "a sense that the former pattern of living was shattered, that the life style was different, and that there

was a certain irreversibility about the course on which the patients found themselves" (Brodsky, 1971, p. 530).

Brodsky goes on to elaborate about the competence crisis, defined as a point in an individual's existence at which they become aware of the danger that they might not succeed in a new venture. Injured workers develop a concept of themselves as disabled and behave in a manner consistent with that disability. This concept is a protective device shielding injured workers from self-doubt and a sense of incompetence relative to work. In discussing preventative planning, Brodsky provides some important insight into rehabilitation. The value of job performance, peer group approval, and work identity is established. The influence of role models for disability is discussed and it is recognized that there is a need to identify career alternatives consistent with the patient's physical and emotional capabilities. The failure to do so may result in work which is too burdensome, unpleasant and unrewarding.

Other researchers, Goldberg and Satow (1972), Kraft (1975) and May (1974), have recognized the existence of the disability process and examined factors influencing rehabilitation. Goldberg and Satow (1972) examined vocational development in 27 young adults with congenital heart disease. Although not industrial injured, these patients did provide insight into rehabilitation needs for those with chronic disabilities. The research helped to establish the need for a positive, persisting attitude toward rehabilitation, a careful exploration of realistic job alternatives, and an ability to express interests, and vocational plans. Kraft (1975), in his research on operant conditioning with this chronically disabled population, further

substantiated the need for carefully reinforcing appropriate behaviors while attending to the psycho-social, educational, and vocational factors influencing disability.

Much of the research discussed thus far has, at least in part, addressed itself to specific factors descriptive of the industrial injured population. In part, the purpose has been to try and identify predictive variables which would allow for early identification of the disability process and provide an opportunity for prevention or early rehabilitation intervention. Although a great deal of unanimity across researchers exists in subjective description of the population, few objectively identifiable variables have been established. Kraft (1975) suggests that the Minnesota Multiphasic Personality Inventory or similar assessment tools are helpful in identifying specific personality traits which can be used as predictors. A similar conclusion was drawn by Fordyce (1976) in his research with a chronic pain/chronic disability population. May (1974) attempted to establish demographic items which could be used to identify injured workers who would suffer a delayed return to work post injury. He administered a 42-item survey consisting of 80 variables to a sample of 150 males with back injuries, separated into two groups, (a) early return to work group; and (b) delayed return to work group. No significant results were obtained and he determined that demographic variables could not be used as accurate predictors.

Although the literature does include research examining personality characteristics and demographic variables as potential predictors, no research has been located in which vocational factors such as career maturity or work values were explored.

Vocational Development and the Industrial Injured

Since the introduction of the concept of stages of career development (Super, 1955), the primary focus of research studies has been restricted to early adult years and the exploratory stage. Less attention has been given to later stages of development particularly as they relate to mid-life career changes or changes required as the result of physical or emotional trauma. Super sums up the series of life's stages as growth, exploration, establishment, maintenance, and decline which he subdivides into additional stages. The exploratory stage includes the following: the fantasy phase, tentative phase, and realistic phase. The establishment stage is divided into the trial phase and stable phase.

Crites (1976) did point out the need to examine stages of development which occur subsequent to exploration. In doing so he remained concerned with the adult years. He calls for research into the establishment stage and points to the need to better understand how and why young people enter and adjust to their jobs. Rationale for this research is based on the centrality of work in an individual's life and the recognition that work is a major source of self-esteem, career satisfaction and success. The establishment stage begins during the period after school ends and work begins (ages 16-25) and continues through mid-life (33-45). At this point the maintenance stage begins and continues through ages 55-70. The last stage is the retirement stage which continues until death (Crites, 1976, p. 107). Crites considers the establishment stage most critical for its role in determining success or failure in a career. It is during the establishment

stage of early adult years that career decisions and career adjustment occur.

The implication in Crites' work and later research (Hershenson & Langbauer, 1973; Hersenson & Lavery, 1978) is that an individual must successfully develop through one stage before entering the next. Hershenson (1968) suggests that five sequential stages of vocational development exist. These include (a) social amniotic (background factors); (b) self-differentiation (self-concept as worker and work motivation); (c) competence (work habits, work skills) and work related interpersonal relationships; (d) independence (appropriateness and crystallization of vocational goals), and (e) commitment (satisfaction and satisfactoriness in occupation). Each "presupposes at least partially successful accomplishment of the prior one" (Hershenson & Lavery, 1978, p. 102).

Two studies were carried out to substantiate the postulated sequency. In the first study a population of socially disadvantaged, inner city residents was rated by project staff members not familiar with the theoretical model. Clients were rated on (a) self-differentiation (self-concept as a worker and motivation to work), (b) competence (work habits, handling interpersonal aspects of work and level of job related skills), and (c) independence (appropriateness of vocational goals). Evaluation of the ratings revealed the sequence of stages follow the predicted order (self-differentiation, competence, independence).

In the second study, a population of 90 employed men ages 21-35 was utilized. All had experienced mid-career changes because of the following factors: (a) 30, as a result of such situational problems as

layoffs; (b) 30, as a result of physical disability; and (c) 30 as a result of voluntary changes. All were asked to complete Vocational Development Scales, which were based on Hershenson's (1968) model. These scales were completed for both occupations (before and after) disruption of their careers, as outlined above. Unfortunately, no separate data were available for the members of the population whose career changes resulted from physical disability. Nevertheless, the data for all subjects again substantiated the sequential model. The results add credence to earlier statements that the physically disabled population must initiate a new career decision making process, identifying new goals of a realistic nature, if return to work post injury is to occur.

In an effort to explore mid-life career changes further, Murphy and Burck (1976) reviewed relevant research literature and postulated the existence of a mid-life developmental stage in career decision making. The studies they reviewed suggested that the mid-life years are a time of change and even crisis in self-concept. Accepting this situation and recognizing Super's (1957) work suggesting that a person's career is an implementation of self-concept, Murphy and Burck (1976) concluded that

> at mid-life one's career may no longer be an accurate expression of that changed self-concept and that a change or adjustment in career may have to be made. The mid-life career development stage is characterized, then, by a re-evaluation of one's self-concept leading to a readjustment or reestablishment in one's career. (p. 341)

This additional developmental stage was termed renewal and added to Super's sequence between establishment and maintenance. It was further suggested that the renewal stage occurs between the ages of 35 and 45,

and, with the aid of a counselor, clients can be helped to examine, restate and accept their values and self-concept.

This work of Hershenson and Lavery (1978) and Murphy and Burck (1976) has important implications for the industrial injured worker. The necessity for mid-life career changes forced upon an individual by physical disability leads directly to the need for a renewal stage of career development. Although this stage is characterized as occurring between ages 35 and 45, the work by Hershenson and Lavery shows it can occur both earlier and later when injury or situational factors precipitate the event.

How the industrial injured worker responds to mid-life career change is significantly affected by perceived locus of control. Gable, Thompson, and Glanstein (1976) have described internally controlled individuals as those who feel personal attitude control from the reinforcement they receive. More specifically these individuals have a sense of self-worth and self-concept stemming from experiences which have reinforced the concept of internal locus of control. An internal locus of control reflects healthier adjustment and a higher level of vocational maturity (Gable et al., 1976).

Conversely, externally controlled individuals perceive reinforcements as controlled by fate, luck and significant others. One hundred seventy-nine freshman to senior female students were used to evaluate relationships among internal/external control and vocational maturity (Gable et al., 1976). Each subject completed the Crites Career Maturity Inventory and MacDonald Tseng I-E Scale. Evaluation of the data clearly demonstrated that internally controlled women had significantly higher vocational maturity scores than

externally controlled women. Further, the study revealed that externally controlled women with atypical vocational choices demonstrated the lowest level of vocational maturity. The study goes on to suggest that internal versus external control and typical versus atypical vocational choices may be, in part, a function of educational background and vocational development. In reviewing other studies, the authors also noted that counseling or specially oriented educational programs can significantly change control orientation and vocational maturity.

Stevens (1973) puts forth the concept of job-seeking behavior as a further segment of vocational development. Two studies were undertaken to examine the relationships between personality characteristics and patterns of job-seeking. In the first study, Stevens (1973) identified three patterns of job-seeking. Members of Group A were characterized by their ability to select realistic goals by evaluating their skills and abilities in relation to job requirements. Job-seeking behavior was purposeful and goal oriented. Members of Group B showed evidence of unreadiness for placement. Job goals were vague and confused. They were further characterized by passivity in decision making. Members of Group C were described as falling between the first two groups in that they were specific in detail on some goals and vague on others. They seemed to be more involved in exploring tentative career choices.

The data collected in the first study were then utilized in Study II in which personality dimensions in job-seeking were explored. Using the Stevens Placement Readiness Scale and the Sheirer and Cattell Neurotic Scale questionnaire with 161 subjects, Stevens found that a

significant relationship between personality characteristics and patterns of job-seeking does exist. Individuals characterized as independent, non-neurotic and tough-minded demonstrated specific job goals and self-actualized behavior. Sensitive, dependent, and neurotic individuals demonstrated vague job goals and passive behavior. The process of job-seeking behavior was then viewed as developmental and reflective of the individual's stage of vocational development.

In Stevens' second study he draws parallels between patterns of job-seeking and stages of vocational development as described by Ginzberg et al. (1951) and Super (1956). Individuals seen as demonstrating low placement readiness expressed vague, unrealistic goals which were a function of wish fulfillment. These individuals were described as functioning in the fantasy stage of vocational development (Ginzberg et al., 1951) or the fantasy subset of Super's exploration stage. Those expressing moderate placement readiness, semi-crystallized goals and a tendency to explore career options were placed in Ginzberg's tentative stage. The final group, demonstrating high placement readiness and career goal crystallization, were considered as functioning in Ginzberg's realistic stage or Super's realistic subset of the exploration stage.

Stevens (1973) concludes that evaluation of vocational maturity must include not only a knowledge of how individuals make a career choice and adjust to work, but also an understanding of the method of job-seeking behavior employed. Effective job-seeking results in placement and enhances adjustment to work. It is an integral part of vocational development and, when embraced as such, Stevens argues, then a theory of vocational development can be constructed which totally

encompasses all vocational behaviors involved in the vocational aspects of life.

Accepting the problems of mid-life career change and the existence of a renewal stage of vocational development provides for a better understanding of the needs of the industrial injured. A further understanding of the implications of locus of control and patterns of job-seeking as functions of vocational development provides for the development of appropriate vocational counseling techniques to assist the industrial injured worker in need of a career reorientation. The studies reviewed present a clear picture of the relationships among personality, locus of control, job-seeking behaviors, vocational maturity and vocational development. Only through an awareness of the implications of each of these areas for mid-life career change when associated with physical disability can the counselor appreciate the problems of the industrial injured.

Work Values

The concept of work values has been discussed thoroughly by career development theorists. Super (1970) defined work values as being "those attributes or qualities we consider to be intrinsically desirable and which people seek in the activities in which they engage" (Super, 1970, p. 4). Tolbert (1974) described values as an individual's source of satisfaction and Holland (1973) saw values as a quality towards which a person strives. That values play a significant role in career decision making seems clear, but operationally defining values is not simple.

Breme and Cockriel (1975) point out the controversy which has arisen over defining values and interests. Too often the terms are used synonymously and yet many researchers stress differences (Crites, 1961; Osipow, 1968). It was the intention of Breme and Cockriel (1975) to demonstrate a close relationship between work values and interests. Utilizing the Work Values Inventory and the Vocational Preference Inventory administered to 195 freshman students, these researchers evaluated the correlation between scales. After inter-correlational coefficients between the scaled scores of both instruments were evaluated, it was determined that the instruments did measure distinctively different concepts. These results led to the conclusion "that values are different than interests in that values are goals and interests reflect activities that lead on to the goal" (Breme & Cockriel, 1975, p. 335).

Hurt and Holen (1976) argue the importance of work values as an independent information source supplementing interests and increasing the effectiveness of career counseling. In their 1976 research, Hurt and Holen sought to evaluate whether an assessment of work values would aid in understanding inventoried interest or expressed interest. Forty-two male and female ninth graders completed the Kuder Preference Record, a work values assessment, and indicated expressed vocational interest. Using an analysis of regression, the authors sought to assess the independent contribution of work values to the relationship of inventoried and expressed interest. The result was to establish work values as a reliable and independent variable. The question was raised by Hurt and Holen as to whether it is necessary to use interest

inventories with the vocationally decided who seek only to confirm their chosen goals. Further conclusions suggest that

> (1) work values should be assessed to guide the vocationally decided into satisfactory aspects of their chosen occupation; and (2) vocational guidance researchers should increasingly use multivariate procedures to determine how to use work values and inventoried interest in combination to guide undecided clients into satisfying vocational channels. (Hurt & Holey, p. 92)

Drummond, McIntire, and Skaggs (1977) submit that satisfaction with work is a function of work values and the extent to which those values are met by job conditions. In a study involving 677 employees Drummond et al. explored differences in intrinsic and extrinsic work values as compared to levels of job satisfaction. Super (1970) described intrinsic work values as the satisfactions which individuals seek in their work while extrinsic values are those satisfactions which are the outcomes of work. Using this operational definition, Drummond et al. administered the career transition questionnaire and the work values inventory to assess an individual's planning for work, job hunting strategies, job satisfaction, aspirations, altruisms, esthetics, creativity, intellectual stimulation, achievement, independence, prestige, management, economic returns, security, surroundings, supervisory relationships, way of life, associates, and variety. Subjects were grouped in high, moderate, and low job satisfaction levels and a one way analysis of variance was computed. Significant differences were found more frequently between satisfaction levels for intrinsic rather than extrinsic values. This study strongly recommends the need for counselors to help clients explore the interplay between intrinsic values and job alternatives. Further conclusions show that the development of vocational insight required

identification, recognition and exploration of values as much as an exploration of career choices and goals.

Work motivation as reflected by job productivity may also be a function of job satisfaction (Kazanas, 1978). As pointed out by previous studies (Breme & Cockriel, 1975; Crites, 1961; Hurt & Holen, 1976; Wirtz & Goldstein, 1975), satisfaction is related to the fulfillment of intrinsic work values by job conditions rather than by worker motivation and job productivity which are also functions of work values (Zytowski, 1970).

Kazanas (1978) selected a random sample of 240 graduates from vocational programs to determine whether or not new workers with predominantly intrinsic work value orientation and a broad perception of the meaning of work were more satisfied with their occupation and were more productive than those workers with a predominantly extrinsic work value orientation and a relatively narrow perception of the meaning of work.

Each subject responded to the value of work scale and the Minnesota Satisfaction questionnaire, while immediate supervisors completed the Minnesota Satisfactoriness Scale. A multivariate analysis of variance was performed and results indicated that beginning workers with a predominantly intrinsic work value orientation scored significantly higher on job productivity. Kazanas concluded that

> the findings imply that the dynamics of work value orientation toward job satisfaction and job productivity must be considered in explaining these variables. In addition, the relationship of a broad perception of the meaning of work and job satisfaction should be of concern to vocational educators and employers. (Kazanas, 1978, p. 162)

The importance of the concept of work values in explaining vocational behavior and career decision making becomes clear as the research literature is reviewed. Work values are central to career development theory (Holland, 1973; Super, 1970) and voluminous research demonstrates the role of intrinsic/extrinsic work value orientation in career exploration (Hurt & Holen, 1976), job satisfaction (Drummond, McIntire, & Skaggs, 1977), job productivity (Kazanas, 1978), and career salience and vocational indecision (Greenhaus & Simon, 1977).

Work Values as a Function of Demographic Variables (Age, Sex, Socio-Educational Background)

The influence of demographic variables on work values has been explored in a variety of research projects. Wijting, Arnold, and Conrad (1977) explored the relationships between work values and social, educational, and occupational experiences using a population of 6th, 9th, 10th, and 12th grade boys and girls. Two questionnaires were administered. The first was the survey of work values measuring social status of job, activity preference, job involvement, upward striving, attitude toward earnings and pride in work. The second was a biographical questionnaire which explored students' educational and vocational aspirations, experiences with school, work and parents and general background data.

Using canonical regression analysis, these researchers studied the relationships between each set of variables and the six survey of work values subscaled within each grade group. The results supported the prediction that the correlates of work values vary across grades 6, 9, 10, and 12 and differ from boys to girls. The study revealed that the principal variables influencing work values were student educational

and social experiences and vocational aspirations. Academic achievement, positive attitude toward school life, confidence in achieving occupational goals and anticipated intrinsic rewards were also influential.

In this study, differences across grade levels did exist but the overall trend was for the strength of the relationships to increase from grades 9 to 12. The socio-educational set decreased from grade 10 to grade 12, possibly reflecting increased crystallization of work values and increasing saliency of experiences associated with these values. It is noted that when considered as sets of variables, the constructs of work values demonstrated relatively weak relationships. The researchers felt this weakness was due to the instability of work values at these age periods.

In a follow-up study, Wijting, Arnold, and Conrad (1978) explored differences in work values between parents and children and between boys and girls in grade levels 6, 9, 10, and 12. Using discriminant function analysis the researchers confirmed "that at earlier ages there is greater similarity in values between children and their like-sexed parent but older (grade 12) boys and girls are most similar to their fathers" (Wijting et al., 1978, p. 245).

This change in work values across grade levels was also noted by Gribbons and Lohnes (1965), who revealed a trend from an idealistic to a realistic focus as individuals progressed through grade levels. Some differences in work values between boys and girls also were noted, although overall more similarities than differences existed.

Wagman (1965) researched work values among a population of university students who responded to Center's Job Values and Desires

Questionnaire. He subsequently compared those results to earlier studies by Singer and Steffles (1954a, 1954b) who researched high school students and adults. Wagman's findings suggest (a) a preference among university men for esteem while women at that level prefer social service activities; (b) university men are inclined toward interesting experiences, leadership and esteem while high school males endorse job security and independence; and (c) university females endorse interesting experiences as compared to high school females who prefer security and independence.

In summary, there does appear to be a difference in work values across age perhaps reflecting a crystallization of values and goals as individuals progress through social, educational and work experiences. Differences in values between sexes are less significant but seem to occur more at later grade levels (12th grade and university levels).

Vocational Maturity

In the literature regarding career maturity, much support is found for the existence of the concept (Bartlett, 1971; Super & Jordaan, 1973), but differences in definition and measurement exist (Bartlett, 1971; Crites, 1961; Super, 1973).

Super (1953) and Super et al. (1957) have outlined vocational development stages through which individuals pass on a progressive basis. Vocational maturity is directly related to these stages and is reflected in an individual's "degree of development, the place reached on the continuum of vocational development from exploration to decline" (Super, 1955, p. 153). Later Super and Jordaan (1973) further refined

the operational definition of vocational maturity by providing two additional constructs. In these definitions of vocational maturity the authors first refer to the "individual's life state as shown by the developmental tasks with which he is coping in relation to the tasks with which others of his age and status are coping" and second considered "how the individual copes with these developmental tasks, comparing his coping behavior with those of others of his peer group who are similarly involved" (Super & Jordaan, 1973, p. 4). Bartlett (1971) and Crites (1961) referred to the first definition quoted as the absolute and the second definition quoted as the relative approaches.

Crites (1961) expressed concern that one could be found vocationally mature using one of Super's definitions and vocationally immature using another. Accordingly, he developed an alternative view of vocational maturity using the concept of degree of vocational development. Vocational development is defined as the "maturity of an individual's vocational behavior and that of the oldest individual in his vocational life stage" and rate of vocational maturity is defined as "the majority of an individual's vocational behavior in comparison with that of his own age group" (Crites, 1961, p. 259). In 1965, Crites constructed the Vocational Development Inventory as a means of relating age to vocational maturity. Bartlett (1971) noted that the Vocational Development Inventory was based on the concept of degree of vocational development which was comprised of four basic dimensions, (a) consistency of vocational choice, (b) wisdom of vocational choice, (c) competencies, and (d) vocational choice attitude. Bartlett (1971) went on to review vocational maturity literature related to measurement

and concluded, "the studies reviewed indicated that vocational maturity existed and can be measured: yet the specific application of such findings to counseling has to be established" (Bartlett, 1971, p. 224).

Bartlett pursued the concept of vocational maturity as an aspect of personality development. In doing so, vocational maturity was related to personality maturity and the following description of the vocationally mature person was developed:

> He is in the process of becoming (1) more organized in terms of involvement in the vocational choice process and less disturbed by threatening experiences, (2) open to and seeking new self and occupational information, (3) more aware of reality forms of information rather than personal need dominated forms, (4) more aware of his internal (self-concept) and external (world of work) worlds through symbolic representation, and (5) more independent in the choice process and not immediately controlled by his immediate environment, by his motivational state or by his earlier childhood history. (Bartlett, 1971, p. 225)

Bartlett (1968) used the vocational maturity scale of the Vocational Development Inventory as a measure of vocational maturity and the Adjective Check List to measure personality variables. He found that individuals with higher vocational maturity scores were more self-confident, achievement oriented, forceful, independent, less self-critical and less different in relationships with others.

Bohn (1966) had similar findings in his earlier study using the Interest Maturity Scale of the Strong Vocational Interest Blank to measure vocational maturity and the Adjective Check List as a personality measure. The results supported Bohn's hypothesis that high interest maturity scorers would also have personality profiles reflecting maturity.

In summation, the literature establishes vocational maturity as a measureable concept but questions its application to counseling. Vocational maturity does relate to the types of maturity reflected in the research by Bohn (1966) and Bartlett (1971).

> Vocational Maturity is a developmental characteristic which increases with age; a complex characteristic which is multi-dimensional; and an unevenly developing set of characteristics which vary with the maturing individual and on which the individual varies with his peer group as he matures. (Super & Jordaan, 1973, p. 14)

Career Maturity as a Function of Age/Education/Sex/Self-concept

The extent to which vocational maturity is a function of age, education or sex is the subject of much research in the literature (Herr & Enderlein, 1976; Kelso, 1975; Myers, Lindeman, & Thompson, 1975; Omvig & Thomas, 1977).

Kelso (1975) examined the influence of early departure from school on vocational maturity and realism of vocational choice. A population of 1,484 boys from three high schools in Melbourne, Victoria, was administered the Otis Intermediate test or the Otis Higher test to measure intelligence and the Vocational Development Inventory to measure vocational maturity. Additionally, a student survey was used to collect data on (a) school subjects liked least and best, (b) school subjects in which they did well or poorly, (c) hobbies and interests, (d) self-estimates on 12 abilities, skills and personal abilities, and (e) use of leisure time. Realism of vocational choice was rated by three judges utilizing the student survey and IQ score to estimate how well interests and abilities matched those characteristics known to be associated with the preferred occupation.

The results clearly suggest that a significant relationship exists between anticipated stage of leaving school and realism of vocational choice. Those individuals who believed they would be leaving school before 12th grade showed higher levels of realism than those continuing in school despite the fact that those leaving school tended to show less mature vocational attitudes and lower intelligence. Kelso (1975), indicates that the conclusion is a direct reflection of the close proximity of entry into work and the situational need for more urgent self-examination in light of job requirements. A similar conclusion was drawn by Keeling (1971) who, in a study quoted by Kelso (1975), demonstrated that boys of low scholastic ability who were likely to leave school early were the first to reach a realistic state of vocational choice.

Kelso also found that scores on the Vocational Development Inventory tended to increase concomitantly with an increase in intelligence scores. Intelligence is a critical factor in a determination of vocational outcomes but, when confounded with realism, it serves a moderating role. Intelligence also influences differences in vocational choice attitudes. A further conclusion of Kelso is that vocational development, reflected in the maturity of vocational choice attitude and vocational choice realism, is a function of achieved grade level in school.

This finding is substantiated by Herr and Enderlein (1976) in a study which found that scores on the Career Maturity Inventory (CMI) increased by grade level. At the same time it was noted that the rate and level of increase was influenced by sex, school attended and curriculum. Utilizing a longitudinal approach, the researchers

administered the Career Maturity Inventory to 1,553 high school students from three school systems. The basic research questions centered on differences in mean scores on the CMI (Career Maturity Inventory) (a) among three school systems, (b) among four curricula (academic, business, vocational and general), (c) among three grades (9th, 10th, and 12th), and (d) between males and females.

The results reveal that increases in vocational maturity cannot be explained by age and grade level alone. School differences, socioeconomic differences (relating to opportunities for travel and experiences), curriculum differences (in part related to IQ) and sex differences all influenced rate of change in career maturity levels and the level of career maturity which occurs. With respect to sex differences, the findings suggest that females demonstrate a faster rate and level of career maturity during adolescence when all other factors (school, curricula, intelligence, and socioeconomic background) are equal.

Omvig and Thomas (1977) investigated sex differences in levels of maturity as well as the influence of career education on maturity levels in a study of sixth and eighth grade students in Kentucky's education region XII. Utilizing the Career Maturity Inventory, the study found that levels of Career Maturity were affected by sex and career education programs but these influences were independent with no apparent interaction between influences present. This study was an outgrowth of an earlier study by Omvig, Tulloch, and Thomas (1975). In this earlier research, only the influence of career education on career maturity was examined. Using the Career Maturity Inventory, 480 sixth and eighth grade students were tested. One-half of these

students participated in a career education program and one-half remained in a regular school program. Both pre- and posttest scores were obtained. Results demonstrated that the career education students scored consistently higher on posttest measures of career maturity. Significant differences were reported in occupational knowledge of sixth graders, occupational planning for sixth and eighth graders and the attitude scale score for the eighth graders. The conclusions of the researchers suggested that the career education program had a positive effect in increasing students' levels of career maturity.

Myers, Lindeman, Thompson, and Patrick (1975) undertook a research program designed to evaluate a specific educational and career exploration system. A total of 792 10th graders who spent from 1 to 17 hours on the Educational and Career Exploration System conducted in Genesee County, Minnesota, was in the experimental group and 1,453 10th graders were in the control group. Although certain limitations existed within this field study, two important although tentative conclusions were drawn, (a) students who used the Educational and Career Exploration System showed small but real gains in degree of informed planfulness and quality of the actual used and potentially usable resources for educational and vocational exploration; and (b) gains in planning orientation and choice of resources for exploration increased positively with time spent on the Educational and Career Exploration System (ECES). ECES did not have a noticeable effect on the amount of information acquired or how to use the information in decision making. The important implication of this study for present research is the

conclusion that levels and rate of career maturity can be influenced by educational and career programs.

The literature reviewed thus far points clearly to a variety of experimental influences on the levels of career maturity attained, including educational factors, vocational experiences, sex differences and socioeconomic factors. Herr and Enderlein (1976) considered differences and also the range of occupational models to which a student is likely to be exposed. Smith (1976) specifically undertook a study of vocational maturity levels among 188 lower socioeconomic black high school seniors. Concerned with reference group perspectives, the study had as its objectives the following: (a) an examination of the relationships between reference group perspectives and career maturity levels of lower socioeconomic black youth; and (b) an examination of the separate relationships of sex, post-high school plans, and family backgrounds (intact or broken) to black high school students' reference group perspectives and their career maturity.

Each student completed a survey sheet providing demographic data. The population included 74% females, 60% college bound students, and 56% from broken homes. Two instruments were administered, including the Career Maturity Inventory and the Two Factor Index of Social Position. Results indicated no significant relationship between sex of black high school seniors with respect to their orientation toward lower or middle class reference group perspectives or to vocational maturity levels. It was determined that post high school aspirations influenced career maturity levels, with college bound students demonstrating significantly higher CMI scores. The influence may be a function of curricula differences, intelligence differences and the

fact that college bound black youths relate to a middle rather than lower socioeconomic reference group perspective.

No significant differences were found relative to family background (broken or intact homes) but the researcher suggests that such a description may have been too global a variable to have meaningful relevance. A final and important conclusion is that the black students' view of the opportunity structure was significantly related to vocational maturity, with those expressing an open view of that structure obtaining higher vocational maturity scores.

The research consistently supports the positive influences of education and career exploration programs on career maturity levels. Although the literature also consistently relies on the stages of development established by Super (1953) and Super's definition of vocational maturity, it is clear that the rate of progress through these stages and levels of maturity achieved can be negatively or positively influenced by a range of factors. McGowan (1977), in his research on Holland's Self Directed Search (SDS) of Educational and Vocational Planning, demonstrated that the SDS was effective in reducing career indecision. Flake, Roach, and Stenning (1975), in a study of the effectiveness of short-term counseling, demonstrated that (a) career maturity as a developmental process can be measured, and (b) career maturity can be facilitated through counseling. In this study, 87 tenth grade subjects were administered the Career Maturity Attitude Scale, and the self-appraisal subscale of the Competence Test. Subjects whose scores fell below the mean were randomly assigned to experimental and control groups. Seventeen subjects in this experimental group received six weeks of career counseling with specific

reinforcement of dimensions believed to be of a developmental nature. The results indicated that short-term career counseling does facilitate career maturity of 10th grade students as measured by the CMI.

Research by Lawrence and Brown (1976) further established the influence of socioeconomic status, self-concept, race and sex on career maturity. The results suggested that when counselors attempt to predict career maturity as measured by the CMI the race and sex of subjects should be considered as separate predictors. Socioeconomic status and self-concept seem to have a differential or distinctly different effect upon career maturity.

Dillard (1976) examined the relationship of self-concept to career maturity utilizing a population of 252 sixth grade black males. The attitude scale of the Career Maturity Inventory and the Coopersmith Self-Esteem Inventory were used to assess this relationship. Results indicated relatively weak positive relationships between career maturity and self-concept. Socioeconomic status, family intactness, place of residence and reading were found to have stronger predictive values on career maturity with socioeconomic status having the highest correlation.

In summation, career maturity is established as a measurable characteristic which can be significantly influenced by a range of variables. Age, education (including curricula, school system attended, school attended, duration of attendance or grade level), sex and socioeconomic status (including opportunities for travel and experience, reference group perspectives, and occupational models) represent the most significant influences. Self-concept is established

as a weak influence and no support is found for the relationship of anxiety and vocational maturity to career indecision.

Career Maturity at Mid-Life

In Super's (1953; 1957) work on vocational development, an outline of life stages is presented. Vocational maturity is seen as a point on this continuum of life stages and denotes the developmental level obtained (Walls & Gulkus, 1974). Although the research reviewed thus far concerns itself with vocational development and vocational maturity relative to childhood and adolescent stages, it is equally important to consider adult levels of vocational maturity and its implications for mid-life career counseling.

Walls and Gulkus undertook to study the relationship of job reinforcers and occupational values to vocational maturity. Specifically rated were 21 job reinforcers and 11 occupational values. Two hundred and seven vocational rehabilitation clients and 59 graduate students completed the ratings developed from the Minnesota Job Description Questionnaire. Each subject then was administered the Adult Vocational Maturity Index by Sheppard (1971). The results helped to establish construct validity for the AVMI and contributed to the concept of adult vocational maturity in general. Occupational values were found related to vocational maturity as were occupational reinforcers. Older individuals with higher levels of education were found to be more vocationally mature and specifically graduate students consistently scored higher on levels of vocational maturity than vocational students. Subjects who endorsed feelings of accomplishment, morality, steady employment, independence, use of talents, challenge,

and self-satisfaction were found to demonstrate high levels of vocational maturity. Subjects who valued being busy all the time, telling others what to do, high pay, working alone, prestige, security and advancement were found less vocationally mature. Walls and Gulkus drew the conclusion that the behavioral repertoire becomes more reality oriented as vocational attitudes develop over time through a process of growth and learning.

In a 1976 paper, Murphy and Burck proposed that Super's Career Development Theory (1957) be revised to include an additional stage occurring at mid-life. Super (1957) basically concurred when he proposed a model of vocational maturity in mid-career. Defining vocational maturity as "the ability to cope with the vocational or career development tasks with which one is confronted" (Super, 1977, p. 294), Super went on to make a distinction between vocational maturity and adjustment. This distinction was presented as follows:

> Adjustment is an outcome of behavior whether defined as satisfaction (an attitude) or as success (achievement); it is essentially retrospective, for it relates a present condition to past actions. Maturity differs by being prospective; it consists of behaviors and attitudes manifested in the present which pertain to tasks being dealt with in the present or likely to be encountered in the future. The vocationally adjusted person is one who is doing what he likes to do and is a success at doing it; the vocationally mature person is one who is coping with tasks appropriate to his life stage in ways which are likely to produce desired outcomes. (p. 294)

In proposing a model of vocational maturity in mid-career, Super (1977) postulated the same dimensions as exist in the adolescent model. The primary differences are the topics to be explored and the extent and kinds of information required. Decision making principles remain the same, although content differs as does reality orientation. The

adult deals with more self and work history data and external realities are more clearly defined. Super's model is presented as follows.

I. Planfulness or Time Perspectives
   A. Past: Exploration
   B. Present and Immediate Future: Establishment
   C. Intermediate Future: Maintenance
   D. Distant Future: Decline
II. Exploration
   E. Querying
   F. Resources (attitudes toward)
   G. Participation (use of resources)
III. Information
   H. Life Stages
   I. Coping Behaviors: Repertoire
   J. Occupational outlets for self-in-situation
   K. Job outlets for self-in-situation
   L. Implementation: Means of access to opportunities
   M. Outcome probabilities
IV. Decision-Making
   N. Principles
   O. Practice
V. Reality Orientation
   P. Self-knowledge
   Q. Realism
   R. Consistency of occupational preferences
   S. Crystallization
   R. Work experience (Super, 1977, p. 297)

Unlike adolescents, adults find many career options open or closed on the basis of prior experience. Nevertheless, knowledge of opportunities within industries and job requirements along with a knowledge of one's own skills will facilitate transfer to an allied field (Super, 1977). Knowledge of opportunities is a reflection of an adult's level of vocational maturity. Super continues by indicating that a measure

of adult vocational maturity must be involved either in those aspects of vocational maturity common to most adults or be selectively designed for target populations taking into consideration a limited sphere of experiences.

In summary, the literature establishes the concept of career maturity as a point on the vocational development continuum which exists throughout the adult work-life and not merely adolescence. Vocational maturity in adolescence and adult stages is considerably related to occupational values and reinforcers (Walls & Gulkus, 1974). Implications for career counseling are still being established but it is clear that levels of vocational maturity and rate of change in maturity in the adult can be affected by experiences, knowledge of industries and jobs, and career counseling.

CHAPTER III
RESEARCH METHODOLOGY

The purpose of this study was to explore the levels of career maturity and choice of work values of those industrial injured returning to work and those not reentering the labor market. The relationships among vocational maturity, work values and a return to work after injury were specifically examined. In addition, the relationships among vocational maturity, work values, age, sex, race, and level of education were studied.

The Work Values Inventory (WVI), the Life Satisfaction Index A (LSIA), and the Adult Vocational Maturity Inventory (AVMI) were administered to two groups of industrial injured workers totalling 149 persons. Group I consisted of 75 industrial injured workers suffering severe enough impairments to have been assigned permanent physical restrictions, but not exceeding a 25% anatomical impairment as assigned by two independent medical examiners based on the American Medical Association's Guide to the Evaluation of Permanent Impairments. The assignment of permanent restrictions by independent medical examiners involved in the care and treatment of the patient means that it is anticipated that there will be no reduction in the anatomical impairment or level of limitation on physical functioning in the future. These workers returned to work within 26 weeks after reaching maximum medical improvement.

Group II consisted of 74 industrial injured workers suffering severe enough impairments to have been assigned permanent physical restrictions without exceeding a 25% anatomical impairment rating as assigned by two independent medical examiners based on the American Medical Association's Guide to Permanent Physical Impairments. The concepts of permanent anatomical impairments, physical restrictions and limitations are consistent with those described for Group I. These workers did not return to work within 26 weeks after reaching maximum medical improvement.

Additional demographic data were gathered through a questionnaire specifically developed for this purpose. The questionnaire provided data on age, sex, race and education. The relationships between these factors and the AVMI, the LSIA, and the WVI were studied.

The remainder of this chapter provides a detailed explanation of the research procedures employed, including the sample, instruments, data collection, data analysis, and limitations of the study.

The Sample

Access to the total population of industrial injured workers in any one region of the state of Florida is not possible because of the broad range of Worker's Compensation insurance companies which exists and the large number of injured workers involved. Accordingly, the sample was drawn from industrial injured workers within the seven counties of Orange, Osceola, Seminole, Polk, Volusia, Brevard and Marion located in central Florida, willing to volunteer as participants.

Review of the Directory of Florida Industries published by the Florida Chamber of Commerce, the Metropolitan Statistical Abstracts published by the Florida Department of Labor and Employment Security, and Florida Employment Directions published by the Department of Commerce, Office of Research and Statistics, reveals that this seven county region represents a wide range of industries, skills, and vocational backgrounds. Review of the 1981 Florida Statistical Abstract published by the Bureau of Economic and Business Research College of Business Administration University of Florida shows that these counties represent a broad range of age groups, vocational backgrounds, industry, and a representative distribution of sex and race. Also consulted in assessing these data was the United States Bureau of Census, Statistical Abstracts for the state of Florida. It is felt that a representative sample of industrial injured workers was selected despite the limitations of the sampling procedure.

A list of potential volunteers was developed through the Worker's Compensation Insurance Companies, Florida State Rehabilitation Nurses' Caseloads, and Department of Commerce Division of Worker's Compensation lists. A total population of potential volunteers meeting the criteria to be assigned to Group I was established and a similar population of potential volunteers meeting the criteria for assignment to Group II was also established.

Each member of the population in Group I and in Group II was assigned a designating number from a table of random numbers. Utilizing the same table of random numbers, individuals were drawn from the total population of Group I individuals until 75 volunteers were available to complete the group. The same procedure was

followed for Group II. Each of the members of the population assigned either to Group I or to Group II met the criteria outlined under Research Methodology in this chapter. This criteria includes the parameters of permanent restrictions, anatomical rating as assigned by at least two independent medical examiners, and time frames for return to work or failure to return to work.

Experimental Hypotheses

As stated previously this study investigated the relationships among career maturity work values and a return to employment after an industrial injury. The central question was whether or not differences existed in career maturity and work values between those injured persons returning to work (Group I) and those not returning to work (Group II). The following null hypotheses were tested.

H_o1--There are no differences between Group I and Group II with respect to levels of career maturity.

H_o2--There are no differences between Group I and Group II with respect to work values.

H_o3--There is no relationship between career maturity and age, sex, level of education or race.

H_o4--There is no relationship between work values and age, sex, level of education, or race.

H_o5--There is no difference between Group I and Group II with respect to life satisfaction ratings.

H_o6--There is no relationship between life satisfaction ratings and age, sex, education, or race.

Instruments

The Adult Vocational Maturity Inventory

The Adult Vocational Maturity Inventory (AVMI) was utilized to assess levels of career maturity so that an evaluation of differences at these levels could be accomplished among members of Group I and Group II.

The AVMI was developed by Sheppard (1971) as a measure of vocational maturity specifically for the adult population. Viewing vocational development not as a one-time event but as a process beginning in early childhood and continuing through most of an individual's life, Sheppard (1971) sought to establish that vocational maturity can be quantitatively measured in adults. The following dimensions were specifically identified as reflective of an individual's attitudes when selecting a vocation: (a) involvement in the vocational choice process; (b) orientation toward work; (c) independence in all decision-making; (d) preference for vocational choice factors; and (e) conceptions of the choice process.

Building on the works of Ginzberg et al. (1951), Roe (1957), Super (1953; 1955; 1957), Super and Overstreet (1960), and Tiedeman (1961), Sheppard sought to measure vocational maturity defined as

> a level of attainment along a continuum of occupational development which is experienced when selecting a vocation. It includes a person's feelings about a basis for choosing a job and his conceptions of the occupational choice process. (Sheppard, 1971, p. 400)

In designing a measure of vocational maturity in adults, Sheppard sought to evaluate differences existing because of age, education and work history; differences existing between a true-false type response in a 5-point Likert-type format; and differences among three separate

groups or populations on the AVMI. Two hundred unemployed men, 100 unemployed vocational trainees, and 100 unemployed graduates were administered either Form I (true-false format) or Form II (a 5-point Likert scale) of the AVMI.

Results supported the hypothesis that vocational maturity can continue in later life stages and is measurable. No support was found for the influence of age, education, and work history on measured vocational maturity in adults. Earlier studies (Herr & Enderlein, 1976; Kelso, 1975; Omvig & Thomas, 1977) support the hypothesis that factors such as age and education are influences on vocational maturity, but Sheppard suggested that there is a ceiling to this effect and in later tests of college freshmen, no such influences were found.

A split-half reliability correlation was examined for both Form I and Form II of the AVMI. The Spearman-Brown coefficient for Form I (true-false format) was .80 and for Form II (a 5-point Likert scale) was .84.

Sheppard found no significant difference between Form I, the true-false format, and Form II, the 5-point Likert format. Two methods were utilized in completing an item analysis of the two formats. Item correlations with the total scores were used as a measure of internal consistency and a test of the ability of the items to discriminate between the three sample groups was used as a measure of criterion group validity. Sheppard used these procedures to determine the best 40 items from both forms. It was these items that were used for cross validation with the holdout sample. Sheppard next utilized a t test and analysis of variance to examine the 40-item inventory's ability to differentiate among the three sample groups tested. He found that most

of the three sample groups differed significantly from one another. More specifically, it was determined that graduate students were considered to have the highest level of vocational maturity, the unemployed showed the lowest level of career maturity, and the vocational trainees fell in between those two scores. The final statistical analyses involved utilizing t ratios to determine the mean differences on the scale for subjects classified by age, education, and work history. No significant differences were found between older and younger subjects, between individuals who had less than a high school education and those who had finished their secondary education, and between unskilled workers and those with skilled and technical backgrounds. Sheppard did conclude that further research was required in light of the limitations involved in his research.

Loesch, Shub, and Rucker (Note 5) did undertake further study of the AVMI. No significant differences on the basis of sex or grade level were found using a population of post-adolescent community college students. The results identified eight factors approximating the five attitude dimensions outlined by Sheppard. They were as follows:

1. General Vocational Perspective
2. Vocational Knowledge
3. Values of a Career
4. Perspective on Making a Career Selection
5. Outlook toward Eventual Career Placement
6. Orientation toward Career Placement
7. Personal Control in the Career Choice Process
8. Definitiveness of Career Choice

The authors interpreted the normative data as supporting the use of the AVMI for community college students. Perhaps more pertinent to this study, these data also suggested a lack of significant sex differences and no significant difference on the basis of age or education. There was found to be a significant difference on the basis of race, which could have important implications for the present study. The results of the study did not allow for the development of a clear explanation for the differences in scores which existed based on race and a suggestion was made that additional research into influencing factors in other adult populations besides the community college student was needed. This present study specifically explored that difference in an adult Worker's Compensation population.

The AVMI requires a sixth grade reading level which makes it more readily adaptable to the Worker's Compensation population. The level for which it is written allows for understanding even with the illiterate population to whom the test must be read.

The Work Values Inventory

The Work Values Inventory was constructed by Donald Super (1970) to assess specific motivating factors for work. The manual suggests that both extrinsic and intrinsic values are included in this instrument. The inventory was developed using Super's developmental self-concept theory of vocational behavior as its basis (Gable, 1972). The normative population initially included 10,083 7th through 12th graders equally divided between boys and girls. The present instrument represents the product of repeated research and test revision. The WVI consists of 45 normative items which are rated by the subject with respect

to their degree of importance in future job satisfaction. The rating is done on a 5-point Likert scale ranging from very important (5) to important (1).

The scales measure the following 15 values: creativity, management, achievement, surroundings, supervisory relations, way of life, security, associates, esthetics, prestige, independence, variety, economic return, altruism, and intellectual stimulation. By limiting each scale to three items, the test remains brief and easy to understand. Data on reliability and validity were presented in the manual (Super, 1970) with appropriate research cited.

The test retest reliability is substantiated in the manual through a study utilizing 99 high school students who were administered the current form of the WVI two weeks apart. Differences found between mean scores for males and females were not significant when subjected to statistical analysis (French, 1971).

In assessing scale independence on the WVI, Hendrix and Super (1968) developed four scale intercorrelation matrices which are presented in the WVI manual (Super, 1970). These matrices reflect results of studies using 7th and 12th grade boys and girls. They indicate that several work value scales are consistently interrelated across samples (Hendrix & Super, 1968). Gable (1972), in evaluating scale independence, suggests

> Examination of the data presented by Super (1970) along with the information obtained by the reviewer from scale intercorrelations and an item level factor analysis of the 45 item instrument for the sample of 200 sophomores suggests that some of the WVI scales should be grouped together. (Gable, 1972, p. 566)

Specifically, economic returns, security, supervisory relations, surroundings and associate scales when grouped together revealed an

internal-consistency reliability of .87. When considered separately Gable found internal-consistency reliability of .53 and .75. Gable also suggested the esthetic and creativity scales and the prestige and management scales should be grouped into clusters. Super (1972), in response to this critique, acknowledges the importance of internal consistency but refers back to the manual in presenting item sorting data that establish the high degree of consistency with which each WVI item was classified by independent judges.

The manual presents construct, content, and concurrent validity data. With respect to construct validity, the WVI has been studied in relation to the Allport-Vernon-Lindzey Study of Values which is a direct measure of values. The Strong Vocational Interest Blank and the Kuder Preference Record were used as indirect measures of value. The correlations obtained were substantiation of construct validity. In the manual, Super indicates that the values used were derived in part from Spranger's Theory and the Allport-Vernon-Lindzey Study of Values which help validate that theory.

Content validity was reported in the manual and rested primarily on the study of the literature on values and on the revision of items in relation to their comprehension by teenagers and young adults (Super, 1970). Card sorting and labeling experiments suggested that self-reporting methods used with the WVI only affect the altruism and independence responses and that the overall objectives of the test were achieved. Specifically the 15 values are easily comprehensible and their adequacy in getting at the intended values is insured.

Studies designed to establish concurrent validity were not reported in the manual or discussed in critiques of the test (French,

1971; Gable, 1972; Super, 1972). In one study of ninth grade boys, Super (1962) found that work values were not appreciably related to personality traits. Super (1962) and Ivey (1963) found negative results in studies of the relations between the WVI and academic ability, school achievement, and extracurricular activities.

No specific studies utilizing the disabled or lower socioeconomic populations exclusively with the WVI were located. Nevertheless, the reading level and comprehensibility of the inventory make it a good choice for this population.

The Life Satisfaction Index A

The Life Satisfaction Index A was utilized in this study to assess levels of life satisfaction among members of Group I and Group II. The LSIA was initially developed by Neugarten, Havighurst, and Tobin (1961). Later research and modification of this scale was accomplished by Adams (1969) but resulted in two items on the original Life Satisfaction Scale Index being removed. After consideration of the data presented by these two sets of researchers it was determined that the LSIA would be utilized in the context of this study.

It was the intent of Neugarten et al. (1961) to develop a measure of life satisfaction among elderly individuals with the specific purpose of being utilized in a series of Kansas City studies being undertaken and a general purpose of being applicable to other studies with gerontological clients. The original population upon which the LSIA was developed consisted of two groups. The first ranged in age from 50 to 70 and were described as middle and working class Caucasian persons residing in the metropolitan area of Kansas City. Excluded from this

group were the chronically ill and the physically impaired. Selection criteria biased the group membership toward better educated and wealthier individuals of a higher occupational and residential level than might be found in the universe of 50 to 70 year old individuals.

The second group ranged in age from 70 to 90 and consisted of middle class and working class individuals who were neither financially deprived nor physically disabled. The researchers (Neugarten et al., 1961) collected extensive interviews which were repeated numerous times to develop data on each respondent's life pattern, attitudes, and values. Information on daily and weekly activities of their household members, relatives, friends, income, voluntary organizational membership, social interaction, and attitudes toward aging, illness, death, loneliness, boredom, anger, and immortality was developed. From these data were established an initial set of life satisfaction ratings. A panel was established to define specific components of life satisfaction based on the data collected. In the end operational definitions of zest versus apathy, resolution and fortitude, congruence between desired and achieved goals, positive self-concept, and mood tone were developed.

An individual achieved a high or positive rating on life satisfaction scales if it was found that he or she (a) takes pleasure from the round of activities that constitutes everyday life, (b) regards life as meaningful and accepts resolutely that which life has been, (c) feels that major goals have been reached, (d) holds a positive self-image, and (e) maintains a happy and optimistic attitude and mood. Ratings were developed on a 5-point Likert scale with total scores possible ranging from 5 to 25. Data collected on the Life Satisfaction

Rating Scales were compared to the four separate interviews held with respondents over a two-and-one-half-year period. Specific attention was paid scale ratings in relationship to changes which took place in an individual respondent's life over that two-and-a-half-year period.

The relationship between the Life Satisfaction Rating Scale and the interview data was then evaluated or rated by two judges working independently. Judges were chosen from members of the student-faculty research seminar. A total of 14 judges rated 177 cases, with a high reliability among judges. The coefficient of correlation between two LSR ratings for the 177 cases was .78. In the final study there were 885 paired judgments, 94% of which showed exact agreement or agreement within one step on the five-step scale.

Breaking it down into individual scale areas the study found 97% agreement for zest; 96% for resolution; 92% for congruence; 96% for self-concept; and 92% for mood tone. The major problem with the Life Satisfaction Rating Scales was the need for the test to be accompanied by lengthy and detailed interviews with the respondent. It was for this reason that the initial research moved in the direction of developing a simple and short form Life Satisfaction Index which would not require lengthy interviews along with test administration. Sixty cases in the original study were selected to represent the total range of age, sex, and social class from the respondents in the initial research. High scores and low scores on the LSR were used as criterion groups. A list of open-ended questions developed during each of the four interviews with respondents was carefully evaluated to help differentiate between the populations in each of the groups. From this research a Life Satisfaction Index A (LSIA) inventory was developed.

This inventory consisted of 25 attitude items requiring an Agree or Disagree response. A second instrument (the Life Satisfaction Index B) was also developed consisting of 17 open-ended questions and checklist items to be scored on a three-point scale. Each instrument was administered to 92 individuals and the results correlated with the original research on the LSR. LSIA scores correlated .52 with LSR scores. LSR scores correlated .59 with LSIB scores. Subsequently an item analysis was undertaken to determine which of the indexes most accurately differentiated between the high and low LSR groups. As a result, five items on the original LSIA 25-item scale were removed. It is this final 20-item index which was utilized in the current study on Worker's Compensation clients.

Validation of the index was accomplished by comparing ratings from clinical psychologists on life satisfaction with results on the LSIA. This correlation was .39. The same correlation was accomplished with the Life Satisfaction Index B resulting in a .49 coefficient. Correlations appeared higher for individuals of greater age, although this finding does not preclude the use of this scale with younger respondents.

Questionnaire

A questionnaire prepared by the researcher was given to each participating subject to obtain data on age, sex, education and race. This information was used in an exploration of the relationship of these factors to career maturity and work values. A facsimile of the questionnaire is contained in Appendix A.

Collection of Data

Clients on Worker's Compensation selected as participants in the study were first contacted by telephone and subsequently interviewed in person for a brief explanation of the purpose of the study and their role in its completion. Follow-up letters were sent between the time the telephone contact was made and the in-person interview took place simply to confirm the meeting time and place and further outline the participants' role (Appendix B). Whenever possible, participants were asked to meet with the researcher at a convenient office location in Orlando, Florida. For those unable to travel to this location, arrangements were made to meet at the participants' homes with a request for a quiet meeting area made in advance.

Each subject was given an opportunity to ask questions and relax before data collection procedures were initiated. Instructions for the questionnaire, the AVMI, and the WVI were given in turn and the subject was given time, without limitations, to complete each inventory. For those subjects determined to be illiterate, a trained, independent psychometrist administered the questions orally. All data collection was accomplished by either the researcher or a trained psychometrist.

The psychometrist utilized has a Master's degree in mental retardation and is certified by the State Department of Education in mental retardation, and learning disabilities. The psychometrist has extensive training in testing through course work at the University of Central Florida and continuing education programs provided by the State Department of Education. Ten years experience in all phases of psychometric testing include five years experience with the Osceola County

school system providing learning disabilities and education assessment tests; and five years experience in testing Worker's Compensation clients including utilizing the AVMI and the Work Values Inventory.

A careful review of the research methodology in data collection procedures outlined in this chapter was accomplished between the researcher and the research assistant (psychometrist) in order to insure similarities in client contact, instruction procedures, and data collection.

Each client was provided a basic orientation (Appendix C) prior to the initiation of instructions for the instruments. Instructions for the AVMI, WVI, and LSIA were presented to the clients exactly as outlined by the instrument authors (Sheppard, 1974; Super, 1970). Instructions regarding the questionnaire were as follows: (a) For the illiterate client a simple statement indicating the need for identifying information including name, sex, date of birth, education, vocational or trade school completed, and race was accomplished. Each question was asked separately and the answer recorded on the questionnaire. (b) Literate clients were handed the questionnaire and asked to provide the information requested. Each subject was interviewed separately and provided the instruments separately in order to avoid any embarrassment to a client because of illiteracy.

Data collection continued under criteria outlined in the sampling procedures until 149 participants (75 for Group I and 74 for Group II) completed the instruments.

Data Analysis

The raw scores developed on the Work Values Inventory, the Life Satisfaction Index A, and the Adult Vocational Maturity Inventory were used in the analysis of data along with the demographic variables from the questionnaire.

The mean scores for each of the 15 WVI scales were calculated for Group I and Group II separately. A t test was used to determine significant differences between the scores of those returning to work and those not returning. The level of significance in all analyses was set at .05. The results of the AVMI and LSIA were tested in a similar fashion although these inventories produce only one raw score.

The relationships among the variables of age, education, sex, race and scores on the AVMI, LSIA, and Work Values Inventory were determined using an analysis of variance procedure. This analysis of variance was conducted for each group separately so that the impact of age, sex, race and education on AVMI, LSIA and Work Values scores would be revealed for those returning to work and those not returning to work after injury.

Limitations

Although the seven county area in central Florida chosen for the sampling procedure includes a reasonably varied industrial, educational and socioeconomical population, it still represents a limited population in that it does not include a total population of all Worker's Compensation clients in the state of Florida. Accordingly, the data

collected and results obtained cannot necessarily be applied to any other geographical area or population.

A second limitation may stem from the subjects' attempts at impression management or distortion on the inventories or questionnaire. There is always the potential of subjects providing answers which are socially acceptable or which are believed to be the answers the researcher is looking for rather than those truly held by the subjects. Impression management has not been reported as a problem in the literature reviewed and reported in this chapter and therefore is not considered a serious limitation.

Another direct limitation results from the criteria used to determine inclusion in the groups. It was necessary to establish arbitrary upper and lower limits on anatomical ratings so as to exclude those with no permanent injury as well as those with injuries so severe as to preclude a return to work on that basis alone. Although two independent medical examiners were required, the rating procedures do involve a degree of subjectivity and the limits established may eliminate some subjects who may otherwise have been appropriate group members.

A fourth limitation involves the necessity for oral administration of the WVI and AVMI in those instances where group members were illiterate. Neither test manual deals with this problem, nor is it documented in the research literature. Nevertheless, illiteracy is not an uncommon factor with this population and it was felt that exclusion of illiterate workers should not be attempted. A final

limitation involves the use of the LSIA which tends to have greater applicability to an older population than was found in this research.

CHAPTER IV
RESULTS AND DISCUSSION

The experimental hypotheses listed in Chapter III were tested using the statistical design also outlined in the methodology chapter. The analysis of the data was accomplished through the computer facilities of the University of Central Florida, employing the Statistical Package for the Social Sciences (SPSS) developed by Nie, Hull, Jenkins, Steinbrenner, and Bent (1975). The results of the analysis are contained within this results and discussion chapter and are presented both in narrative and tabular form.

Response Rate

As outlined in the methodology section, a potential list of volunteers was developed with each individual being assigned a designating number from a table of random numbers. This initial population consisted of 348 individuals. Each individual was contacted in the method prescribed and in order of his/her randomly assigned number. It was necessary to proceed through the entire list of potential volunteers to obtain 149 subjects (75 for Group I and 74 for Group II). This is a response rate of 42.8% providing usable data.

Demographic Data

Table 1 outlines the demographic make-up of both Group I and Group II. Group I contained 62 white and 13 non-white subjects while Group II had 61 white and 12 non-white subjects.

Table 1

Demographic Data and Group Membership

	Group I Returned to Work	Group II No Return to Work
Race		
White	62	61
Non-white	13	12
Sex		
Male	57	51
Female	18	23
Age		
Mean	44.4	44.8
Education		
Grade Completed	10.31	10.27

Fifty-seven male and 18 female subjects made up Group I while Group II contained 51 males and 23 females. The mean age for Group I was 44.4 years while Group II was 44.8 years. Mean educational levels were similarly close with Group I showing 10.31 years of school completed while Group II showed 10.27 years of school completed, again based on means.

As discussed earlier in the methodology section, access to the total population of industrial injured workers in the state of Florida or in any one region is not possible because of the broad range of worker's compensation insurance carriers and employers which exists. This prevents any direct comparison of group make-up in this study to the population as a whole. The similarity in demographic data between Groups I and II, despite no effort to control membership based on demographic information, does suggest that a representative sample of this population, at least within the seven county central Florida region, has been obtained. The second suggestion implied by the

similarity between group make-ups (Group I to Group II) is that membership in the respective groups is not dependent upon sex, age, education, or race alone.

Testing the Experimental Hypotheses

Work Values Inventory

The first step in analyzing the Work Values Inventory data was to complete a t test to determine significant difference between the scores of those returning to work and those not returning. The level of significance in all analyses has been set at .05. Table 2 reflects the mean, standard deviation, t value, degrees of freedom and 2-tail probability for each of the 15 scales on the Work Values Inventory. Only three of the 15 scales revealed a significant difference in means. Group I obtained a mean score of 13.25 on scale 6 (independence) while Group II obtained a mean of 12.32. The t value equaled 2.55 and the difference was significant at the .01 level. On scale 12 (supervisory relations) Group I obtained a mean value of 11.30 while Group II showed a mean of 10.41. The standard deviation was 2.47 and 2.64 respectively with a t value of 2.12. The difference was significant at the .05 level (2-tail probability = .03). On scale 15 (variety), the Group I mean equaled 12.33 while the Group II mean equaled 11.42. The standard deviation was 1.97 and 2.59 respectively with a t value of 2.34. The difference was significant at the .05 level (2-tail probability = .02).

The remaining scales showed no significant difference in mean values obtained (see Table 2).

Table 2

Mean Scores, t-Values and Levels of Significance of Work Values Inventory Scores for Groups I and II

Scale	Mean	SD	t-Value	df	2-Tail Probability
WV1					
Group I	11.80	2.55	0.07	147	0.94
Group II	11.77	2.55			
WV2					
Group I	10.01	2.76	0.82	147	0.41
Group II	9.63	2.87			
WV3					
Group I	13.41	1.70	0.93	147	0.35
Group II	13.14	1.78			
WV4					
Group I	11.96	2.53	-0.03	147	0.97
Group II	11.97	2.42			
WV5					
Group I	13.00	2.20	0.26	147	0.79
Group II	12.90	2.17			
WV6					
Group I	13.25	1.91	2.55	147	0.01**
Group II	12.32	2.49			
WV7					
Group I	13.12	2.41	0.80	147	0.42
Group II	12.79	2.49			
WV8					
Group I	11.16	2.43	0.92	147	0.36
Group II	10.79	2.39			
WV9					
Group I	9.72	2.51	-0.21	147	0.83
Group II	9.81	2.79			
WV10					
Group I	11.64	2.12	1.71	147	0.08
Group II	10.95	2.69			
WV11					
Group I	10.97	2.32	-0.78	147	0.43
Group II	11.28	2.52			
WV12					
Group I	11.30	2.47	2.12	147	0.03*
Group II	10.41	2.64			

Table 2--continued

Scale	Mean	SD	t-Value	df	2-Tail Probability
WV13					
Group I	13.21	1.82	0.05	147	0.95
Group II	13.22	2.00			
WV14					
Group I	12.65	2.05	-0.18	147	0.85
Group II	12.71	2.18			
WV15					
Group I	12.33	1.97	2.34	139	0.02*
Group II	11.42	2.59			

*.05 level of significance

**.01 level of significance

A rank order hierarchy of mean Work Values scores for Group I and Group II is presented in Table 3. Although the rankings clearly are not equal, the variation appears small. Four of the top five scales for Group I (in order of mean value) are included in the top five for Group II. Group I ranked Work Values 3 (creativity), Work Values 6 (independence), Work Values 13 (associates), Work Values 7 (prestige), and Work Values 5 (achievement) as the top five scales in the hierarchy. Group II ranked Work Values 13 (associates), Work Values 3 (creativity), Work Values 5 (achievement), Work Values 7 (prestige), and Work Values 14 (way of life) as the top five scales in the hierarchy. The greatest spread between groups in the hierarchy is on Work Values 6 (independence). Group I ranks independence second on the hierarchy list while Group II ranks independence as number 6 (a spread of four positions). Both Groups I and II ranked management (WV8), esthetics (WV2), and economic return (WV9) in the bottom four positions of the hierarchy list. Only two scales share the exact same position on the hierarchy list for Groups I and II. These are WV7 (prestige) sharing position 4, and WV8 (management) sharing position 12 on the hierarchy.

Although the hierarchy lists do differ, the positions established by both Groups I and II are sufficiently close that it is difficult to conclude that a higher order ranking of scales can in and of itself be used as a predictor of group membership.

The null hypothesis indicating that no difference would exist in the work values of Group I and Group II is rejected on the basis of significant t test results on scales 6, 12, and 15. With respect to those scales, significant differences do exist at the .01, .05, and

.05 levels respectively. With respect to the balance of the Work Values scales, the null hypothesis is not rejected.

Table 3

Rank Order Hierarchies of Mean Work Values Inventory Scores for Group I and Group II

Group I	Group II
WV3	WV13
WV6	WV3
WV13	WV5
WV7	WV7
WV5	WV14
WV14	WV6
WV15	WV4
WV4	WV1
WV1	WV15
WV10	WV11
WV12	WV10
WV8	WV8
WV11	WV12
WV2	WV9
WV9	WV2

The next null hypothesis considered is that there will be no relationship between work values and race, sex, age, or level of education. Each of these areas is dealt with separately through an analysis of variance and the data are presented on Tables 4 through 12.

A two by two analysis of variance was accomplished revealing main effect, group effect, race effect, and two-way interaction for each of the Work Values scales in relation to race, age, sex, and education. Table 4 presents this analysis of variance with respect to Work Values

Table 4

Analysis of Variance WVI and Race

	SS	df	MS	F	Significance of F
WV1					
Main Effect	8.59	2	4.29	0.69	0.50
Group	0.17	1	0.17	0.02	0.86
Race	8.44	1	8.44	1.34	0.24
2-Way Interaction	0.97	1	0.97	0.15	0.69
WV2					
Main Effect	43.38	2	21.69	2.87	0.06
Group	3.69	1	3.69	0.49	0.48
Race	39.39	1	39.39	5.22	0.02*
2-Way Interaction	27.88	1	27.88	3.70	0.06
WV3					
Main Effect	5.89	2	2.94	0.97	0.37
Group	2.22	1	2.22	0.73	0.39
Race	3.60	1	3.60	1.19	0.27
2-Way Interaction	7.29	1	7.29	2.41	0.12
WV4					
Main Effect	12.60	2	6.30	1.03	0.36
Group	0.00	1	0.00	0.00	0.98
Race	12.59	1	12.59	2.05	0.15
2-Way Interaction	5.11	1	5.11	0.83	0.36
WV5					
Main Effect	2.02	2	1.01	0.21	0.80
Group	0.58	1	0.58	0.12	0.72
Race	1.46	1	1.46	0.31	0.57
2-Way Interaction	27.09	1	27.09	5.81	0.02*
WV6					
Main Effect	36.08	2	18.04	3.66	0.02*
Group	34.66	1	34.66	7.04	0.009*
Race	1.58	1	1.58	0.32	0.57
2-Way Interaction	8.59	1	8.59	1.74	0.18
WV7					
Main Effect	11.81	2	5.90	0.98	0.37
Group	4.46	1	4.46	0.74	0.38
Race	7.20	1	7.20	1.20	0.27
2-Way Interaction	12.68	1	12.68	2.11	0.14
WV8					
Main Effect	39.46	2	19.73	3.45	0.03*
Group	3.94	1	3.94	0.69	0.40
Race	35.24	1	35.24	6.17	0.01**
2-Way Interaction	0.00	1	0.00	0.00	0.98

Table 4--continued

	SS	df	MS	F	Significance of F
WV9					
Main Effect	64.13	2	32.06	4.82	0.009**
Group	0.93	1	0.93	0.14	0.70
Race	63.37	1	63.37	9.53	0.002**
2-Way Interaction	2.88	1	2.88	0.43	0.51
WV10					
Main Effect	32.32	2	16.16	2.74	0.068
Group	17.47	1	17.47	2.96	0.08
Race	14.46	1	14.46	2.45	0.12
2-Way Interaction	1.01	1	1.01	0.17	0.68
WV11					
Main Effect	2.46	2	1.23	0.20	0.81
Group	2.31	1	2.31	0.38	0.53
Race	0.11	1	0.11	0.01	0.89
2-Way Interaction	2.43	1	2.43	0.40	0.52
WV12					
Main Effect	31.31	2	15.65	2.54	0.08
Group	31.30	1	31.30	5.08	0.02*
Race	0.05	1	0.05	0.009	0.92
2-Way Interaction	26.49	1	26.49	4.30	0.04*
WV13					
Main Effect	1.34	2	0.69	0.24	0.78
Group	0.11	1	0.11	0.04	0.83
Race	1.25	1	1.25	0.45	0.50
2-Way Interaction	3.75	1	3.75	1.37	0.24
WV14					
Main Effect	39.04	2	19.52	4.67	0.01**
Group	0.02	1	0.02	0.00	0.94
Race	39.04	1	39.04	9.34	0.003**
2-Way Interaction	1.55	1	1.55	0.37	0.54
WV15					
Main Effect	32.45	2	16.22	3.05	0.051
Group	32.42	1	32.42	6.09	0.01**
Race	0.11	1	0.11	0.02	0.88
2-Way Interaction	0.50	1	0.50	0.09	0.76

*.05 level of significance

**.01 level of significance

Inventory scales and race. No significant relationship is discovered with respect to scales 1, 3, 4, 7, 10, 11, or 13. More specifically there are no significant results in the case of these scales with respect to either the main effect, group differences, or racial differences either between groups or within groups.

Significant differences between white and non-white subjects are found on scales 2 (esthetics), 8 (management), 9 (economic return), and 14 (way of life). The results of these scales suggest significant racial differences do exist. These data were first analyzed with respect to all subjects regardless of group membership. On the scales listed, non-white subjects consistently obtained higher mean scores than white subjects (see Table 8--Cell Means for Significant ANOVAS WVI/Race). On scales 5 (achievement), and 12 (supervisory relations), significant differences between white and non-white subjects were found (see Table 12). On both scales 5 and 12 Group I (returned to work), data result in a significantly greater mean being achieved for non-white subjects over white subjects. This trend is reversed in Group II (did not return to work) for both scales with non-white subjects achieving a significantly lower mean than white subjects.

Because group differences are found in scales 6 and 12 (see Table 4) and a main effect was revealed for scales 6, 8, 9, and 14. Based on data presented on Tables 4 and 12, the null hypothesis suggesting no relationship between Work Values Inventory Scales and race is rejected with respect to those scales outlined.

Table 5 represents the data developed on the basis of an analysis of variance of Work Values Inventory Scales and sex. Cell means for significant ANOVAS based on Work Values Inventory Scales and sex are

Table 5

Analysis of Variance WVI and Sex

	SS	df	MS	F	Significance of F
WV1					
Main Effect	0.84	2	0.42	0.06	0.93
Group	0.06	1	0.06	0.01	0.92
Sex	0.80	1	0.80	0.12	0.72
2-Way Interaction	36.35	1	36.36	5.71	0.02*
WV2					
Main Effect	35.49	2	17.74	2.27	0.10
Group	3.48	1	3.48	0.44	0.50
Sex	30.16	1	30.16	3.87	0.05*
2-Way Interaction	5.90	1	5.90	0.75	0.38
WV3					
Main Effect	3.88	2	1.94	0.63	0.53
Group	2.89	1	2.89	0.94	0.33
Sex	1.27	1	1.27	0.41	0.52
2-Way Interaction	1.00	1	1.00	0.32	0.56
WV4					
Main Effect	0.09	2	0.05	0.00	0.99
Group	0.01	1	0.01	0.00	0.96
Sex	0.09	1	0.09	0.01	0.90
2-Way Interaction	4.13	1	4.13	0.66	0.41
WV5					
Main Effect	1.91	2	0.95	0.19	0.82
Group	0.22	1	0.22	0.04	0.82
Sex	1.57	1	1.57	0.32	0.56
2-Way Interaction	0.00	1	0.00	0.00	0.97
WV6					
Main Effect	45.66	2	22.83	4.64	0.01**
Group	35.32	1	35.32	7.18	0.008**
Sex	13.51	1	13.51	2.75	0.09
2-Way Interaction	0.19	1	0.19	0.03	0.84
WV7					
Main Effect	3.95	2	1.97	0.32	0.72
Group	3.76	1	3.76	0.61	0.43
Sex	0.07	1	0.07	0.01	0.91
2-Way Interaction	2.79	1	2.79	0.45	0.49
WV8					
Main Effect	8.43	2	4.21	0.71	0.49
Group	4.23	1	4.23	0.71	0.39
Sex	3.53	1	3.53	0.59	0.44
2-Way Interaction	0.62	1	0.62	0.10	0.74

Table 5--continued

	SS	df	MS	F	Significance of F
WV9					
Main Effect	2.15	2	1.07	0.15	0.86
Group	0.19	1	0.19	0.02	0.86
Sex	1.85	1	1.85	0.25	0.61
2-Way Interaction	2.61	1	2.61	0.36	0.54
WV10					
Main Effect	21.04	2	10.52	1.78	0.17
Group	15.88	1	15.88	2.69	0.10
Sex	3.79	1	3.79	0.64	0.42
2-Way Interaction	7.42	1	7.42	1.26	0.26
WV11					
Main Effect	3.33	2	1.66	0.28	0.75
Group	2.51	1	2.51	0.42	0.51
Sex	1.01	1	1.01	0.17	0.67
2-Way Interaction	18.77	1	18.77	3.20	0.07
WV12					
Main Effect	41.70	2	20.85	3.22	0.04*
Group	38.53	1	38.53	5.95	0.01**
Sex	4.82	1	4.82	0.74	0.39
2-Way Interaction	1.60	1	1.60	0.24	0.62
WV13					
Main Effect	6.18	2	3.09	1.13	0.32
Group	0.37	1	0.37	0.13	0.71
Sex	5.98	1	5.98	2.19	0.14
2-Way Interaction	0.04	1	0.04	0.01	0.89
WV14					
Main Effect	2.11	2	1.05	0.23	0.78
Group	0.00	1	0.00	0.00	0.98
Sex	2.09	1	2.09	0.47	0.49
2-Way Interaction	4.14	1	4.14	0.93	0.33
WV15					
Main Effect	43.86	2	21.93	4.17	0.01**
Group	31.87	1	31.87	6.06	0.01**
Sex	14.71	1	14.71	2.80	0.09
2-Way Interaction	2.55	1	2.55	0.48	0.48

*.05 level of significance

**.01 level of significance

presented in Table 9. No significant findings were developed for scales 3, 4, 5, 7, 8, 9, 10, 11, 13, and 14. In none of the scales listed were significant differences between groups found and there is no indication of a significant difference between males and females. No main effect and no interaction effect was found in any of these scales. Differences based on sex without regard to group membership were found on only one scale (WV2). On that scale males obtained a mean significantly higher than the mean obtained by females. On the basis of the data the null hypothesis suggesting no relationship between sex and Work Values is rejected for scale 2. The null hypothesis suggesting no relationship between Work Values scales 1, and 3 through 15 is not rejected.

The relationship of age to Work Values Inventory scales is presented in Table 6 and Table 10. An analysis of variance reveals no significant relationship for scales 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, and 15. There is a significant relationship on the basis of age for scale 12 with males demonstrating an obtained mean value significantly higher than females. On the basis of the data reviewed, a null hypothesis indicating no relationship between sex and WVI scales is not rejected for any of the scales outlined with the exception of WV12 (supervisory relations). The null hypothesis is rejected for scale 12. The data presented in Tables 6 and 10 also indicate significant differences between groups on WV12 with Group I (return to work) obtaining a substantially higher mean value than Group II (no return to work).

The relationship between education and Work Values Inventory Scales is presented on Tables 7 and 11. No significant relationship

Table 6

Analysis of Variance WVI and Age

	SS	df	MS	F	Significance of F
WV1					
Main Effect	17.38	2	8.69	1.47	0.23
Group	0.69	1	0.69	0.11	0.73
Age	16.62	1	16.62	2.81	0.09
2-Way Interaction	7.71	1	7.71	1.30	0.25
WV2					
Main Effect	20.42	2	10.21	1.30	0.27
Group	5.29	1	5.29	0.67	0.41
Age	15.28	1	15.28	1.95	0.16
2-Way Interaction	21.24	1	21.24	2.72	0.10
WV3					
Main Effect	0.00	2	0.00	0.00	1.00
Group	0.00	1	0.00	0.00	0.99
Age	0.00	1	0.00	0.00	0.98
2-Way Interaction	0.41	1	0.41	0.14	0.70
WV4					
Main Effect	16.93	2	8.46	1.41	0.24
Group	1.50	1	1.50	0.25	0.61
Age	15.51	1	15.51	2.59	0.11
2-Way Interaction	3.26	1	3.26	0.54	0.46
WV5					
Main Effect	11.36	2	5.68	1.36	0.26
Group	0.25	1	0.25	0.06	0.80
Age	11.13	1	11.13	2.66	0.10
2-Way Interaction	5.16	1	5.16	1.23	0.26
WV6					
Main Effect	11.70	2	5.85	1.16	0.31
Group	9.32	1	9.32	1.86	0.17
Age	2.29	1	2.29	0.45	0.50
2-Way Interaction	8.97	1	8.97	1.79	0.18
WV7					
Main Effect	2.85	2	1.42	0.28	0.75
Group	1.49	1	1.49	0.29	0.58
Age	1.32	1	1.32	0.26	0.60
2-Way Interaction	7.33	1	7.33	1.45	0.23
WV8					
Main Effect	3.23	2	1.61	0.26	0.77
Group	0.43	1	0.43	0.06	0.79
Age	2.78	1	2.78	0.44	0.50
2-Way Interaction	0.12	1	0.12	0.02	0.88

Table 6--continued

	SS	df	MS	F	Significance of F
WV9					
Main Effect	8.05	2	4.02	0.64	0.52
Group	0.68	1	0.68	0.10	0.74
Age	7.33	1	7.33	1.17	0.28
2-Way Interaction	1.02	1	1.02	0.16	0.68
WV10					
Main Effect	12.17	2	6.08	1.13	0.32
Group	4.65	1	4.65	0.87	0.35
Age	7.62	1	7.62	1.42	0.23
2-Way Interaction	0.01	1	0.01	0.00	0.95
WV11					
Main Effect	6.69	2	3.34	0.53	0.58
Group	6.67	1	6.67	1.06	0.30
Age	0.01	1	0.01	0.00	0.96
2-Way Interaction	0.00	1	0.00	0.00	0.98
WV12					
Main Effect	80.45	2	40.22	6.54	0.002**
Group	41.91	1	41.91	6.81	0.01**
Age	37.70	1	37.70	6.13	0.01**
2-Way Interaction	0.00	1	0.00	0.00	0.97
WV13					
Main Effect	3.19	2	1.59	0.56	0.57
Group	0.89	1	0.89	0.31	0.57
Age	2.26	1	2.26	0.79	0.37
2-Way Interaction	0.18	1	0.18	0.06	0.80
WV14					
Main Effect	0.33	2	0.16	0.03	0.96
Group	0.23	1	0.23	0.05	0.82
Age	0.10	1	0.10	0.02	0.88
2-Way Interaction	0.00	1	0.00	0.00	0.96
WV15					
Main Effect	22.59	2	11.29	2.67	0.07
Group	16.71	1	16.71	3.96	0.04*
Age	5.67	1	5.67	1.34	0.24
2-Way Interaction	9.10	1	9.10	2.15	0.15

*.05 level of significance

**.01 level of significance

Table 7

Analysis of Variance WVI and Education

	SS	df	MS	F	Significance of F
WV1					
Main Effect	13.09	2	6.54	1.04	0.35
Group	0.41	1	0.41	0.06	0.79
Education	12.74	1	12.74	2.03	0.15
2-Way Interaction	6.58	1	6.58	1.05	0.30
WV2					
Main Effect	6.30	2	3.15	0.39	0.67
Group	4.52	1	4.52	0.56	0.45
Education	1.69	1	1.69	0.20	0.64
2-Way Interaction	17.30	1	17.30	2.14	0.14
WV3					
Main Effect	11.96	2	5.98	1.97	0.14
Group	2.03	1	2.03	0.67	0.41
Education	9.78	1	9.78	3.23	0.07
2-Way Interaction	1.50	1	1.50	0.49	0.48
WV4					
Main Effect	5.69	2	2.84	0.45	0.63
Group	0.19	1	0.19	0.03	0.86
Education	5.52	1	5.52	0.88	0.35
2-Way Interaction	6.03	1	6.03	0.96	0.32
WV5					
Main Effect	4.48	2	2.24	0.45	0.63
Group	0.67	1	0.67	0.13	0.71
Education	3.86	1	3.86	0.78	0.37
2-Way Interaction	0.15	1	0.15	0.03	0.86
WV6					
Main Effect	36.24	2	18.12	3.60	0.03*
Group	35.70	1	35.70	7.10	0.009**
Education	0.69	1	0.69	0.13	0.71
2-Way Interaction	0.04	1	0.04	0.01	0.92
WV7					
Main Effect	44.41	2	22.20	3.72	0.02*
Group	5.21	1	5.21	0.87	0.35
Education	38.73	1	38.73	6.50	0.01**
2-Way Interaction	0.44	1	0.44	0.07	0.78
WV8					
Main Effect	78.66	2	39.33	7.34	0.001**
Group	2.62	1	2.62	0.49	0.48
Education	75.56	1	75.56	14.11	0.000**
2-Way Interaction	28.25	1	28.25	5.27	0.02*

Table 7--continued

	SS	df	MS	F	Significance of F
WV9					
Main Effect	38.92	2	19.46	3.04	0.05*
Group	0.20	1	0.20	0.03	0.85
Education	38.62	1	38.62	6.04	0.01**
2-Way Interaction	7.90	1	7.90	1.23	0.26
WV10					
Main Effect	53.35	2	26.67	4.74	0.01**
Group	14.39	1	14.39	2.55	0.11
Education	38.19	1	38.19	6.78	0.01**
2-Way Interaction	0.00	1	0.00	0.00	0.99
WV11					
Main Effect	17.36	2	8.68	1.43	0.24
Group	2.37	1	2.37	0.39	0.53
Education	15.19	1	15.19	2.50	0.11
2-Way Interaction	1.39	1	1.39	0.23	0.63
WV12					
Main Effect	29.93	2	14.96	2.45	0.09
Group	29.10	1	29.10	4.76	0.03*
Education	1.01	1	1.01	0.16	0.68
2-Way Interaction	46.82	1	46.82	7.66	0.006**
WV13					
Main Effect	12.04	2	6.02	2.32	0.10
Group	0.40	1	0.40	0.15	0.69
Education	11.71	1	11.71	4.52	0.03
2-Way Interaction	10.62	1	10.62	4.10	0.04*
WV14					
Main Effect	19.60	2	9.80	2.26	0.10
Group	0.00	1	0.00	0.001	0.98
Education	19.59	1	19.59	4.51	0.03*
2-Way Interaction	2.18	1	2.18	0.50	0.47
WV15					
Main Effect	38.33	2	19.16	3.62	0.02*
Group	33.64	1	33.64	6.36	0.01**
Education	5.15	1	5.15	0.97	0.32
2-Way Interaction	9.23	1	9.23	1.74	0.18

*.05 level of significance

**.01 level of significance

Table 8

Cell Means for Significant ANOVAS (WVI/Race)

WV2			
Race 1	= 9.62 (123)	Race 2	= 11.00 (25)
WV6			
Main Effect	= 12.78 (148)		
Group I	= 13.25 (75)	Group II	= 12.29 (73)
WV8			
Main Effect	= 10.99 (148)		
Race 1	= 10.77 (123)	Race 2	= 12.08 (25)
WV9			
Main Effect	= 9.79 (148)		
Race 1	= 9.50 (123)	Race 2	= 11.24 (25)
WV12			
Group I	= 11.39 (71)	Group II	= 10.45 (69)
WV14			
Main Effect	= 12.71 (140)		
Race 1	= 12.47 (123)	Race 2	= 13.88 (24)
WV15			
Group I	= 12.34 (71)	Group II	= 11.38 (69)

Table 9

Cell Means for Significant ANOVAS (WVI/Sex)

WV1			
2-Way Interaction:	Sex 1		Sex 2
Group I	11.47		12.83
Group II	12.04		11.17
WV2			
Sex 1	= 10.11 (108)	Sex 2	= 9.07 (41)
WV6			
Main Effect	= 12.79 (149)		
Group I	= 13.25 (75)	Group II	= 12.32 (74)
WV12			
Main Effect	= 10.89 (141)		
Group I	= 11.39 (71)	Group II	= 10.37 (70)
WV15			
Main Effect	= 11.89 (141)		
Group I	= 12.34 (71)	Group II	= 11.43 (70)

Table 10

Cell Means for Significant ANOVAS (WVI/Age)

WV12			
Main Effect	= 10.75 (102)		
Group I	= 11.38 (53)	Group II	= 10.08 (49)
Age 1	= 11.55 (38)	Age 2	= 10.28 (64)

Table 11

Cell Means for Significant ANOVAS (WVI/Education)

WV6			
Main Effect =	12.75 (143)		
Group I =	13.23 (74)	Group II =	12.23 (69)
WV7			
Main Effect =	12.90 (143)		
Education 1 =	13.25 (82)	Education 2 =	12.36 (61)
WV8			
Main Effect =	10.99 (143)		
Education 1 =	11.62 (82)	Education 2 =	10.15 (61)
WV9			
Main Effect =	9.69 (143)		
Education 1 =	10.13 (82)	Education 2 =	9.08 (61)
WV10			
Main Effect =	11.29 (143)		
Education 1 =	11.74 (82)	Education 2 =	10.69 (61)
WV12			
Group I =	11.36 (70)	Group II =	10.43 (65)
WV14			
Education 1 =	13.04 (76)	Education 2 =	12.27 (59)
WV15			
Main Effect =	11.82 (135)		
Group I =	12.30 (70)	Group II =	11.31 (65)

Table 12

Cell Means for Significant ANOVAS: WVI, Race, Sex, Age, Education (2-Way Interaction)

WV1 (Race)		
2-Way Interaction:	Race 1	Race 2
Group I	12.85	13.69
Group II	13.11	11.67
WV12 (Race)		
2-Way Interaction:		
Group I	11.21	12.23
Group II	10.66	9.36
WV8 (Education)		
2-Way Interaction:	Education 1	Education 2
Group I	12.12	9.77
Group II	11.08	10.53
WV12 (Education)		
2-Way Interaction:		
Group I	11.77	10.80
Group II	9.81	11.21
WV13 (Education)		
2-Way Interaction:		
Group I	13.77	12.63
Group II	13.39	13.38

was established between education and scales 1, 2, 3, 4, 5, 6, 11, 15. The null hypothesis suggesting no relationship between education and Work Values Inventory scale is not rejected for those scales listed.

A significant relationship between education and Work Values scales 7, 8, 9, 10, and 14 is noted. In each instance males obtained significant higher mean values than females. For those scales (7, 8, 9, 10, and 14) the null hypothesis is rejected.

Significant group differences are revealed for Work Values scales 6, 12, and 15. In each instance Group I (return to work) showed significantly higher obtained mean values than Group II (those not returning to work).

Reviewing all of the analysis of variance data presented in Tables 4 through 11, the null hypothesis suggesting no difference between groups on Work Values Inventory scales is rejected for WV1 (altruism), WV6 (independence), WV12 (supervisory relations), and WV15 (variety). For the balance of the Work Values Inventory scales the null hypothesis (there is no difference between Group I and Group II with respect to Work Values) is not rejected.

Adult Vocational Maturity Inventory

The mean, standard deviation, t value, degrees of freedom and 2-tail probability analysis of Adult Vocational Maturity Inventory scores for Group I and Group II are presented in Table 13. No significant difference in obtained means is noted. A review of the data on analysis of variance presented in Table 14 also indicates no significance between group differences, and the null hypothesis suggesting no

difference in career maturity (Adult Vocational Maturity Inventory scores) between Group I and Group II is not rejected.

Table 13

Mean Score, t-Value and Level of Significance of the Adult Vocational Maturity Score for Group I and Group II

	Mean	SD	t-Value	df	2-Tail Probability
AVMI					
Group I	112.28	20.71	0.62	146	0.53
Group II	110.28	18.11			

Table 14 also contains analysis of variance data on the relationships between scores on the Adult Vocational Maturity Inventory and race, sex, age and education. Significant differences in means obtained between white and non-white subjects are found both between and within groups. The differences are significant to a .01 and .05 level respectively. The within group differences are characterized by substantially higher obtained means for non-white subjects in both Groups I and II. Based on these data the null hypothesis suggesting no relationship between race and Adult Vocational Maturity Inventory scores is rejected. Similar findings are reported by Loesch, Shub, and Rucker (Note 5) in a study of the Adult Vocational Maturity Inventory. In that instance non-white (ethnic minority) students were found to have significantly higher mean scores than white students. That finding is similar to the results obtained in this study.

A significant difference in obtained means between males and females without regard to group membership was also revealed at a significance level of .05. There is no interaction effect revealed in

the two by two analysis of variance. The 1978 study by Loesch, Shub, and Rucker (Note 5) found no relationship between sex and scores obtained on the Adult Vocational Maturity Inventory; nevertheless, the null hypothesis indicating no relationship between sex and obtained values in the Adult Vocational Maturity Inventory is rejected.

Table 14

Analysis of Variance AVMI and Race, Sex, Age and Education

	SS	df	MS	F	Significance of F
AVMI					
Main Effect	5645.12	2	2822.56	8.40	0.000**
Group	139.38	1	139.38	0.41	0.52
Race	5478.20	1	5478.20	16.31	0.00**
2-Way Interaction	1757.14	1	1757.14	5.23	0.02*
AVMI					
Main Effect	1729.90	2	864.95	2.30	0.10
Group	106.30	1	106.30	0.28	0.59
Sex	1562.98	1	1562.98	4.16	0.04*
2-Way Interaction	52.78	1	52.78	0.14	0.70
AVMI					
Main Effect	422.85	2	211.42	0.58	0.55
Group	48.04	1	48.04	0.13	0.71
Age	372.48	1	372.48	1.03	0.31
2-Way Interaction	145.32	1	145.32	0.40	0.52
AVMI					
Main Effect	5071.18	2	2535.59	7.03	0.001*
Group	171.18	1	171.18	0.47	0.49
Education	4880.77	1	4880.77	13.53	0.000**
2-Way Interaction	279.76	1	279.76	0.77	0.38

*.05 level of significance

**.01 level of significance

The next set of data presented in Table 14 is an analysis of variance concerning the relationship between Adult Vocational Maturity Inventory scores and age. No indication of significant differences

either between or within groups is noted and there is no interaction effect. On the basis of these data the null hypothesis suggesting no relationship between age and obtained Adult Vocational Maturity Inventory scores is not rejected.

The final analysis of variance data on Table 14 assess the relationship between Adult Vocational Maturity Inventory scores and education. A significant difference in obtained means is noted (at the .01 level) between individuals who have achieved a high school diploma and those who have not. On the basis of the data reviewed the null hypothesis suggesting no relationship between AVMI scores and education is rejected.

Cell means for all the significant ANOVAS relating to the Adult Vocational Maturity Inventory are presented in Table 15.

Table 15

Cell Means for Significant ANOVAS (AVMI)

AVMI (Race)			
Main Effect	= 111.36 (147)		
Race 1	= 108.59 (122)	Race 2	= 124.88 (25)
2-Way Interaction:	Race 1		Race 2
Group I	108.00		133.15
Group II	109.18		115.92
AVMI (Sex)			
Sex 1	= 113.39 (107)	Sex 2	105.93 (40)
AVMI (Education)			
Main Effect	= 111.41 (142)		
Education 1	= 116.51 (81)	Education 2	= 104.64 (61)

The Life Satisfaction Index A

Table 16 contains the mean, standard deviation, t values, degrees of freedom and 2-tail probability analysis for Life Satisfaction Index A scores achieved by Group I and by Group II. A significant difference at the .05 level is achieved with members in Group I (return to work) demonstrating significantly higher scores than members of Group II (did not return to work). This would suggest a significant relationship between Life Satisfaction and return to work versus no return to work for group members.

Table 16

Mean Score, t-Value, and Level of Significance of the Life Satisfaction Index A Score for Group I and Group II

	Mean	SD	t-Value	df	2-Tail Probability
LSIA					
Group I	8.86	2.41	2.09	146	0.03
Group II	8.00	2.62			

Group differences continue to be demonstrated at a .05 level of significance for all the data presented in Table 17 (analysis of variance). Based on the data obtained the null hypothesis suggesting no difference between Group I and Group II with respect to obtained Life Satisfaction Index A scores is rejected.

The analysis of variance data contained within Table 17 also assesses relationships between the LSIA and race, sex, age, and education. No significant differences within or between groups based on race, sex, age, or education are noted and the null hypothesis

suggesting no relationship between race, sex, age, education and scores obtained on the LSIA is not rejected.

Table 17

Analysis of Variance LSIA and Race, Sex, Age, Education

	SS	df	MS	F	Significance of F
LSIA					
Main Effect	30.76	2	15.38	2.38	0.09
Group	27.76	1	27.76	4.31	0.04*
Race	3.27	1	3.27	0.50	0.47
2-Way Interaction	4.85	1	4.85	0.75	0.38
LSIA					
Main Effect	34.67	2	17.33	2.71	0.07
Group	29.23	1	29.23	4.57	0.03*
Sex	7.18	1	7.18	1.12	0.29
2-Way Interaction	8.10	1	8.10	1.26	0.26
LSIA					
Main Effect	22.87	2	11.43	1.88	0.15
Group	22.67	1	22.67	3.72	0.05*
Age	0.23	1	0.23	0.03	0.84
2-Way Interaction	0.14	1	0.14	0.02	0.87
LSIA					
Main Effect	30.12	2	15.06	2.36	0.09
Group	28.12	1	28.12	4.42	0.03*
Education	1.85	1	1.85	0.29	0.59
2-Way Interaction	11.01	1	11.01	1.73	0.19

*.05 level of significance

Cell means for significant ANOVAS relating to the LSIA are presented in Table 18.

Summary

The members of Group I (return to work) and Group II (did not return to work) were found to be similar with respect to race, sex, age, and education. In addition group membership was carefully controlled based on criteria set out in the Methodology chapter.

Table 18

Cell Means for Significant ANOVAS (LSIA)

LSIA (Race)			
Group I =	8.86 (74)	Group II =	8.00 (73)
LSIA (Sex)			
Group I =	8.86 (74)	Group II =	8.00 (73)
LSIA (Age)			
Group I =	8.59 (56)	Group II =	7.67 (52)
LSIA (Education)			
Group I =	8.85 (73)	Group II =	7.96 (69)

On the Work Values Inventory Groups I and II showed significant difference in mean scores obtained on scales 6 (independence), 12 (supervisory relationships), and 15 (variety). A significant relationship between race and scales 2 (esthetics), 8 (management), 9 (economic return), and 14 (way of life) was found. A relationship between sex and Work Values scale 2 (esthetics) was also found. Finally the Work Values Inventory scales 7 (prestige), 8 (management), 10 (security), and 14 (way of life) were found to have a significant relationship with achieved educational level.

No significant differences between groups on achieved scores on the Adult Maturity Inventory were found. There does appear to be a relationship between race, sex, and education and scores obtained on the Adult Vocational Maturity Inventory as seen in analysis of variance data contained within Table 14.

Between group differences on Life Satisfaction Index A scores were noted to a .05 level of significance. Members of Group I (return to work) demonstrated significantly higher Life Satisfaction ratings than did members of Group II (did not return to work). No relationship between race, sex, age, education, and achieved scores on the Life Satisfaction Index A was found.

CHAPTER V
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter includes a summary of the study, a discussion of the conclusions drawn from the data analysis and recommendations based on the results and findings.

Summary

The purpose of this study was to identify the level of career maturity, choice of work values, and level of life satisfaction of those industrial injured individuals returning to work and those not reentering the labor market in order that some predictive variables might be identified. Such predictive variables would allow for early assessment of clients who might have difficulty returning to the labor market after industrial injury and for early intervention techniques to be applied. The study specifically examined the relationships among career maturity, work values, life satisfaction and a return to employment after industrial injury. A determination of the differences which exist in work values, career maturity, and life satisfaction between those injured persons returning to work (Group I) and those not returning to work (Group II) was made. In addition the relationships which exist between scores on the Work Values Inventory, the Adult Vocational Maturity Inventory, the Life Satisfaction Index A, and race, sex, age, and education were assessed through appropriate statistical

analysis. All experimental hypotheses were stated in null form as follows:

H_o1--There are no differences between Group I and Group II with respect to levels of career maturity.

H_o2--There are no differences between Group I and Group II with respect to work values.

H_o3--There is no relationship between career maturity and age, sex, level of education or race.

H_o4--There is no relationship between work values and age, sex, level of education, or race.

H_o5--There is no difference between Group I and Group II with respect to life satisfaction ratings.

H_o6--There is no relationship between life satisfaction ratings and age, sex, education, or race.

A list of potential volunteers for this study was developed through the Worker's Compensation insurance companies, and Florida State Rehabilitation nurse caseloads along with Department of Commerce Division of Worker's Compensation lists. A total population of potential volunteers meeting the criteria for assignment to Group I and Group II was established. Each member of the population in Group I and in Group II was assigned a designating number from a table of random numbers. Utilizing the same table of random numbers, individuals were drawn from the total population of Group I individuals until 75 volunteers were available. The same procedure was used to develop 74 volunteers for Group II. It was necessary to proceed through the entire 348 members of the list to develop 149 volunteers.

Clients were contacted in the manner prescribed in the methodology chapter (Chapter III). Testing and demographic data collection were also accomplished within the prescribed guidelines.

The mean scores for each of the 15 Work Values Inventory Scales were calculated for both Group I and Group II and a t test was used to determine significant differences between the scores of those returning to work and those not returning. The level of significance for all data analysis was set at .05. Results of the Adult Vocational Maturity Inventory and the Life Satisfaction Index A were tested in a similar fashion. The relationships among the variables of race, age, sex and education as they relate to scores on the Work Values Inventory, the Adult Vocational Maturity Inventory, and the Life Satisfaction Index A were assessed using an analysis of variance procedure. Those data are contained within Tables 1 through 18.

As previously indicated, the assignment of individuals to Group I and Group II was based on criteria clearly outlined in the methodology chapter. In addition, members of Groups I and II were found to be similar in race, sex, age, and education (see Table 1).

Significant differences on mean scores for the Work Values Inventory scales 6, 12, and 15 were obtained for Groups I and II. In addition, it was determined that some individual scales of the Work Values Inventory did show a relationship with race, sex, age, and education, although for the majority of scales no significant relationships were found.

On the Adult Vocational Maturity Inventory no significant between-group differences were located, but a relationship between race, sex, and education with Adult Vocational Inventory scores was found to

exist. Between group differences on Life Satisfaction Index ratings were also found, but no relationship with race, sex, age or education was determined.

Conclusions

Previous research reviewed in Chapter II (Review of Related Literature) found no significant predictive variables between groups of individuals returning to work and those not returning to work based on an analysis of psychological factors. Apparently, no other research has been specifically undertaken on an assessment of group differences based on work values, career maturity, and life satisfaction. This study does indicate that specific Group differences do exist. Treating each of the 15 scales on the Work Values Inventory as separate scores, it was determined that the Groups differed with respect to the following work values: independence, supervisory relations, and variety. Individuals in Group I (returned to work) obtained significantly higher mean scores on each of these Work Value scales than did members of Group II (did not return to work).

These between group differences on scales 6 (independence), 12 (supervisory relations), and 15 (variety) were not affected by relationships with race, sex, or education. Only one of these scales (12) showed a relationship with age. Based on the data analysis, the differences between groups on scales 6, 12, and 15 appear to be predictors of group membership.

The balance of the Work Values Scales, along with the Adult Vocational Maturity Inventory results, suggests significant similarities between Groups I and II. Therefore, they are similar not only in terms

of demographic variables as outlined in Table 1, but they also show closely related rank order hierarchies of work value scales and similar levels of career maturity (AVMI scores). Although Life Satisfaction Index A ratings were significantly different, it must be kept in mind that many of the members of Group I (returned to work) had found acceptable employment prior to the time they took the test and this may have had a direct impact on LSIA results. Therefore, this represents a limitation on the use of LSIA scores as a predictor without further research.

Adult Vocational Maturity Inventory scores are significantly related to race, sex, and education and as a result cannot be used independently as predictors of group membership. Group differences also existed between obtained scores on the Life Satisfaction Index A for Groups I and II. Group I (returned to work) achieved significantly higher Life Satisfaction ratings than did members of Group II (did not return to work).

Recommendations

Although initial steps had been taken to identify predictive variables which would delineate group membership for this population of industrial injured individuals, it is felt that significantly more research must be done if sufficient predictive variables are going to be found. The variables identified and outlined in the conclusions section of this chapter can be utilized by the prudent counselor if limitations are placed on the purpose of early intervention. If these variables are used solely to identify those individuals who may require some additional vocational rehabilitation and career counseling

assistance then no negative impact will result. On the other hand, significantly more research must be accomplished if predictive variables are going to be used for the purpose of labeling a client with membership in one group over the other.

Several alternative studies should be considered. A similarly designed study for the purpose of replicating the results obtained on the Work Values Inventory would be helpful in confirming the predictive variables identified.

Administration of the Life Satisfaction Index A to a large population of industrial injured individuals before return to work with evaluation of the data after group membership has been assigned would be helpful in identifying whether or not Life Satisfaction ratings may be used as a predictive variable for group membership.

A further recommendation suggested by the results obtained on the Adult Vocational Maturity Inventory would be for early intervention with career counseling and career exploration techniques uniformly applied to all industrial injured individuals. The career maturity levels obtained would suggest that all individuals regardless of group membership would benefit from such assistance.

A final recommendation would be for a further study to evaluate the relationship between life satisfaction and scores on the Work Values Inventory.

In conclusion, it appears that predictive variables do exist which will allow counselors to identify those industrial injured individuals who will return to work versus those who will show prolonged periods of unemployment. To finally determine a significant number of predictive variables and to be able to accurately apply these to the counseling

process will require additional research. Counselors should be encouraged to consider the use of these inventories in working with the Worker's Compensation population and further should give careful consideration to the predictive variables identified although actual application and/or use of these variables for purposes other than pursuing early intervention techniques should be restricted.

APPENDIX A
QUESTIONNAIRE

1. Name: _____

2. Sex: Male ____ Female ____

3. Date of Birth: _____

4. Highest Grade in School Completed:

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15

5. Vocational or Trade School Completed: Yes ____ No ____

6. Race: Black ____ Caucasian ____ Other ____

APPENDIX B
FOLLOW-UP LETTER

Dear _____

You have been selected to participate in a research study designed to help us learn more about industrial injuries. Your participation may aid in developing more effective career counseling techniques for injured workers. Our goal is to develop early intervention efforts to help workers as soon after injury as possible so that they will be able to reach their maximum vocational potential after medical treatment has been completed. The data or information obtained will be used in a doctoral dissertation but your name will remain confidential.

This study will require only 30 to 45 minutes of your time to complete a brief questionnaire and two inventories asking for information on how you make vocational decisions and on your work values. Although names are kept confidential, you may request feedback on the results of your inventories by letting the examiner know of your wishes at the time of participation.

Your assistance is greatly appreciated and I look forward to meeting you on (date, time) at (address).

Sincerely,

Paul M. Deutsch

M.R.C.; C.R.C.

APPENDIX C
ORIENTATION

I would like to thank you for your willingness to participate in this study. As indicated in the appointment letter, the goal is to improve our knowledge of the most effective techniques for helping the injured worker in exploring career options, developing an understanding of work values or job satisfiers and making career or vocational decisions.

You will be here approximately 30-45 minutes and may take your time in completing the instruments. If you have questions or wish to take a break, let me know.

If there are no questions at this time, we can get started.

APPENDIX D
INTERPRETATION OF WORK VALUES INVENTORY SCALES*

1. Altruism

   this work value is present in work which allows one to contribute to the welfare of others; social service interests and values are stressed most highly

2. Esthetic

   a value demonstrated in work which permits one to make beautiful objects and to contribute beauty to the world; interests in the arts and theater are stressed

3. Creativity

   associated with work which permits one to invent new things, design new products or develop new ideas; related to artistic as well as scientific interests and associated with non-material aspects of culture

4. Intellectual Stimulation

   associated with work which provides an opportunity for independent thinking and for learning how and why things work; independent thinking, scientific and professional interest are stressed

5. Achievement

   a value associated with work which gives one a feeling of accomplishment in doing a job well; assesses task orientation and a liking for work with visible tangible results

6. Independence

   associated with work which permits one to work in their own way as fast or as slowly as they wish; reflects a pleasure orientation

7. Prestige

   associated with work which gives one standing in the eyes of others and evokes respect; related to a desire for the respect of others rather than for specific status or power

8. Management

associated with work which permits one to plan and lay out work for others to do; related to people interested in contact occupations, as well as persons in occupations requiring that they plan their own work even if not that of others

9. Economic Returns

a value associated with work which pays well and enables one to have the things they wish; related to materialistic values and tangible pursuits

10. Security

associated with work which provides one with the certainty of having a job even in hard times; related to Economic Returns; in that it is considered a secondary material value. Also reflected is a degree of interest in getting the rewards of work

11. Surroundings

a value associated with work which is carried out under pleasant conditions; related to the material environment in which the work is done and reflected in people whose interests are not specifically in the work itself but in its concomitants

12. Supervisory Relations

a value associated with work which is carried out under a supervisor who is fair and with whom one can get along

13. Associates

a value characterized by work which brings one into contact with fellow workers whom they like; more often reflected by persons in lower-skilled occupations

14. Way of Life

a value associated with the kind of work that permits one to live the kind of life they chose and to be the type of person they wish to be

15. Variety

a value associated with work that provides an opportunity to do different types of jobs; reflects a pleasure rather than a task orientation

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*These interpretations are paraphrased from Super's Work Values Inventory Manual (1970, pp. 8-10).

APPENDIX E
INFORMED CONSENT

You have been selected to participate in a research study designed to help us learn more about industrial injuries. Your participation may help us in better understanding which individuals need special assistance in career counseling and guidance early after the injury has occurred.

This study will require only 30-45 minutes of your time to complete a brief questionnaire and two inventories asking for information on your knowledge of career decision making and your work values. Your name will be kept confidential but the data or information obtained will be used in a doctoral dissertation. You may request feedback on the results of your inventories by letting the examiner know of your wishes at the time of participation.

Your signature on this form represents an agreement on your part to participate in the study, complete the inventories and questionnaire, and allow that information to be utilized in the research paper. Your cooperation and assistance is greatly appreciated.

You are free to withdraw your consent for participation in this study at any time up to the point of its conclusion.

_____
Subject Date

_____
Witness Date

Paul M. Deutsch,
M.R.C.; C.R.C.

_____

_____
Name and Address

_____
Date

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BIOGRAPHICAL SKETCH

Paul M. Deutsch was born in 1949 in the Bronx, New York, and is the second of four children. Six years of elementary school education were completed in Charlotte, North Carolina, and secondary school education was completed in Fort Lauderdale, Florida. He received his bachelor's degree in psychology from Rollins College in Orlando, Florida, in 1971.

A move to Gainesville, Florida, followed with the completion of a master's degree in rehabilitation counseling from the University of Florida in 1971. He became employed by the State of Florida Department of Health and Rehabilitative Services as a rehabilitation counselor working with severe orthopedic disabilities (spinal cord injured) and brain trauma clients. In 1973 he went to work for a private agency in Orlando, Florida, working a general rehabilitation caseload. At that time he began consultation in Worker's Compensation and personal injury litigation. In 1975 Mr. Deutsch returned to the University of Florida to enter the doctoral program in counselor education with a minor in rehabilitation counseling and a subspecialization in severe orthopedic disabilities. Course work and qualifying exams were completed in October of 1976. In June of 1976 Mr. Deutsch opened a private practice in rehabilitation counseling in Orlando, Florida. In addition to general caseload counseling, he began extensive research into work with

catastrophic disabilities. During this time he also began collecting the data for use in his doctoral dissertation. In December of 1982 Mr. Deutsch published a two-volume textbook, Damages in Tort Actions, for Matthew Bender Publishing Incorporated. The text traces the medical, psychological, and vocational rehabilitation implications of every permanent injury listed in the American Medical Association's Guide to Permanent Impairments.

Mr. Deutsch has a wife and two children and continues to maintain his private practice in the Orlando area. He anticipates concentrating in research and publication along with his private practice work and has just signed a contract to complete his third book.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Harold C. Riker, Chairman
Professor of Counselor Education

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John P. Saxon
Associate Professor of
Rehabilitation Counseling

This dissertation was submitted to the Graduate Faculty of the Department of Counselor Education in the College of Education and to the Graduate School, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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