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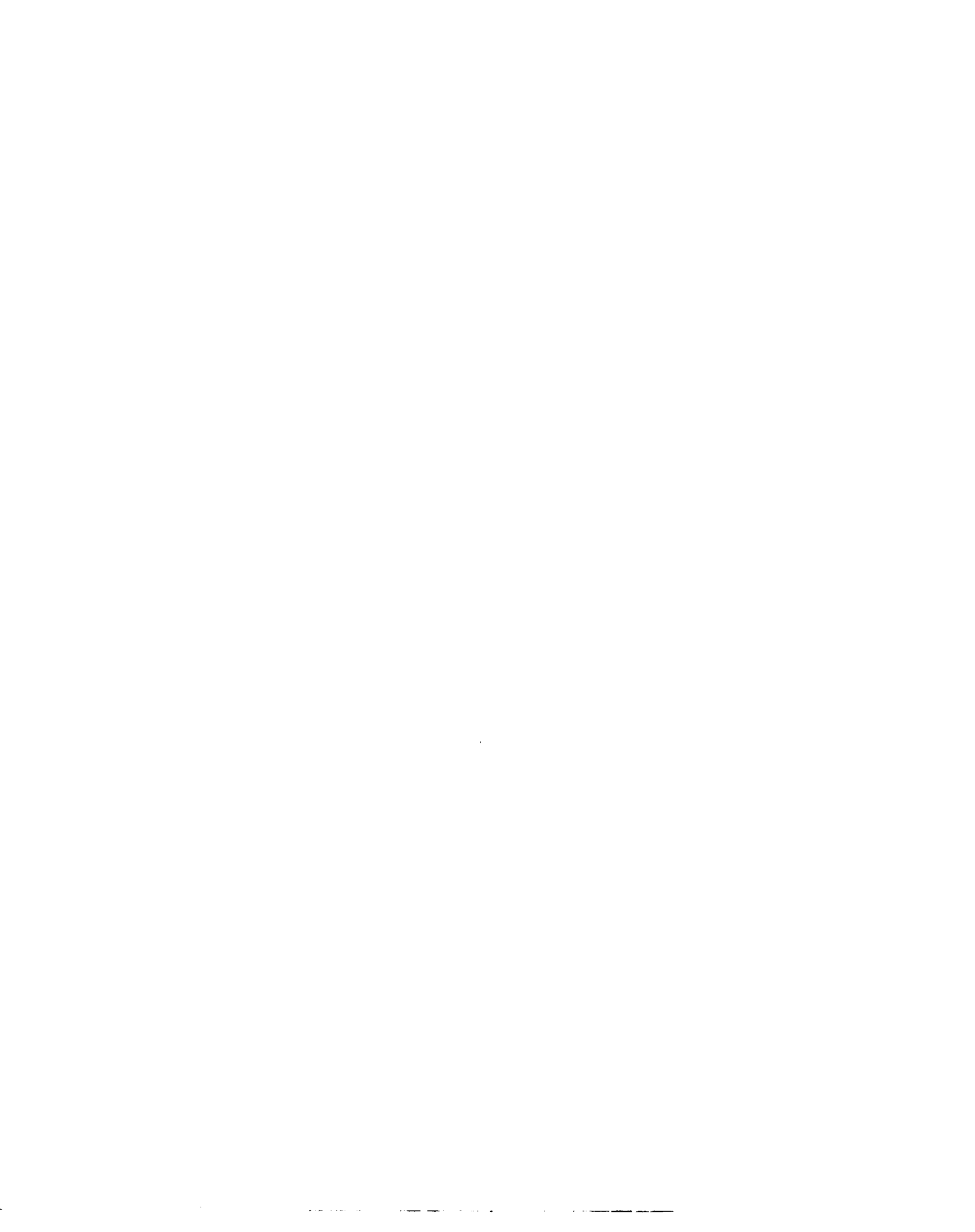
An investigation of psychological type and career maturity

Freeman, Suzanne Cole, Ph.D.

The University of North Carolina at Greensboro, 1994

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AN INVESTIGATION OF PSYCHOLOGICAL TYPE AND CAREER MATURITY

by

Suzanne Cole Freeman

A Dissertation Submitted to
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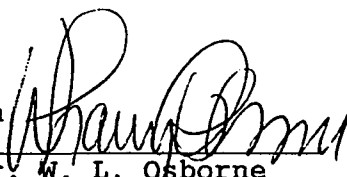
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The problem addressed by this research was to investigate Super's construct of career maturity, as defined by the Career Development Inventory, to determine if its development is limited to a certain psychological type, as defined by the Myers-Briggs Type Indicator. The Hotelling-Lawley Trace was the statistic employed to analyze the potential relationships between the scales of the Career Development Inventory and the Myers-Briggs Type Indicator. It was determined that there were no statistically significant correlations between the scales of the two instruments. Results indicate that the concept of career maturity is more broadly defined than theory currently states. Career counselors should accept different psychological type preferences as effective processes for making credible career decisions. The results of this investigation suggest the need for a reconsideration of three basic tenets of Super's theoretical model of career development. The model should be reconsidered for the purpose of broadening the definition of acceptable processes of information gathering, decision making, and decision strategy in the course of career decision making.

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of the Graduate School at the University of North Carolina Greensboro.

Dissertation
Advisor

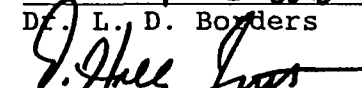

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CHAPTER I

INTRODUCTION

The concept of career maturity is central to Donald Super's (1990) theory of career development, and is the focus of this research. The construct originated from The Career Pattern Study (Super, Crites, Hummel, Moser, Overstreet, & Warnath, 1957), a longitudinal study which tracked the vocational development of ninth grade boys through their high school years. Super's intention was to construct a model of career development from adolescence to adulthood. Career maturity is a measure of planfulness and readiness to make a credible career decision (Super, 1990). It is a multidimensional construct having both cognitive and affective aspects (Super, 1990). This study is intended to investigate the relationship of career maturity and psychological type. Psychological type is a concept based on Jung's (1971) theory of psychological typology and the research and development of type by Briggs and Myers (Myers, 1987).

Theory of Career Development and Choice

Career counseling has its roots in the United States in the early 1900's and has continuously evolved through this century to become one of the principal specialties in counseling (Brown & Brooks, 1990). Many general theories of

career choice have been developed. Donald Super's (1990) work has emerged as one of the most comprehensive and well-researched theories of career development and choice. Super has been a leading theorist and researcher in the area of career development for over fifty years. His early studies of careers began in the late 1930's (Super, 1939, 1940). Super (1981, 1983a, 1983b) pointed out that the historical bases of his theory are in developmental psychology, especially the work of Buehler (Super, 1990), differential psychology, occupational sociology, and decision making theory. The decision making component of the theory is based on the work of Jepsen (1973), Tiedeman and O'Hara (1963), and Harren (1979).

Super (1992) proposed two models for the conceptualization of a career, each focusing on slightly different aspects. The life-span/life-space model, the Rainbow (see Figure 1), portrays life development. The Rainbow depicts the life span with lines that represent age, roles, and stages of career development. It visually contrasts their sequencing and interrelationships. The Rainbow is primarily a representation of the concept of career maturity as a complex developmental process which extends over a normal lifetime.

The determinant/choice model, the Arch (see Figure 2), depicts the complex interacting determinants or factors of a career. The Arch is a representation of the most important

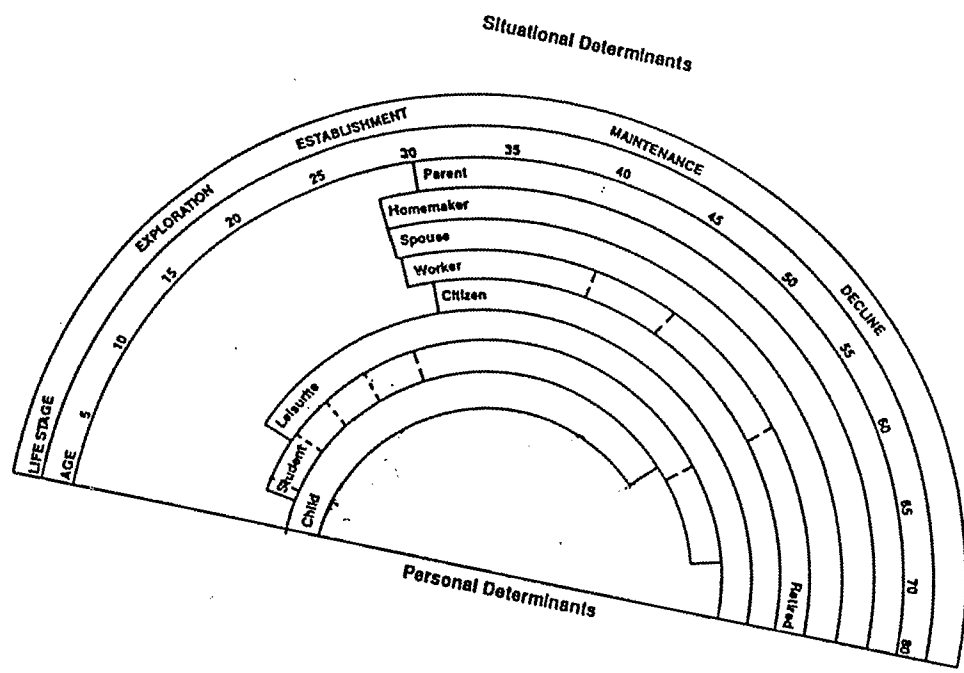


Figure 1. The Rainbow Model of Life Development
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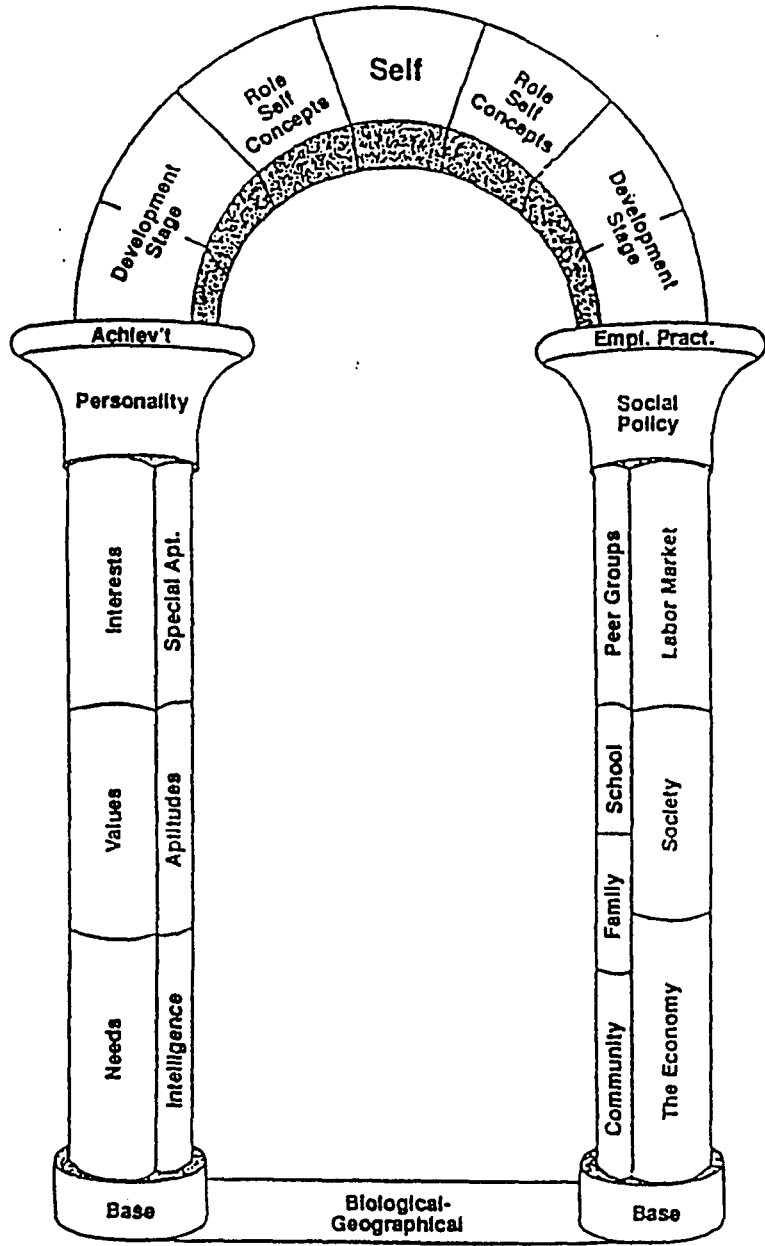


Figure 2. The Arch Model of Determinants
Adapted from Super (1990) by permission from author.

influences on a person's career development and functioning, including those which are biological, socioeconomic, and psychological in nature (Super, 1990). In order to test these models, the C-DAC Model of assessment was developed.

The C-DAC Model

Super encouraged the development of assessment instruments to collect data for research and to help counselors diagnose developmental issues related to career development. Out of this work has come the Career-Development Assessment and Counseling or C-DAC Model. The instruments in the C-DAC assessment battery include the following: The Career Development Inventory (CDI; Super, Thompson, Lindeman, Jordaan, & Myers, 1981), the Adult Career Concerns Inventory (Super & Thompson, 1981), the Salience Inventory (Super & Nevill, 1986), the Values Scale (Nevill & Super, 1986), and the Strong Interest Inventory (Campbell & Hansen, 1981).

The C-DAC research program at the University of North Carolina at Greensboro follows "Sequence C" of the C-DAC Model (Super, Osborne, Walsh, Brown, & Niles, 1992), which allows the addition of instruments to the basic five instruments. In this case the Myers-Briggs Type Indicator (MBTI; Myers, 1962) has been added. The CDI measures attitudes and knowledge associated with career development and assesses readiness to make career decisions (Super, Thompson, Lindeman, Jordaan, & Myers, 1981).

The MBTI categorizes persons according to preferences called psychological type. It measures four dichotomous scales: Extraversion-Introversion, Sensing-Intuition, Thinking-Feeling and Judgment-Perception. Some of the functions measured by the MBTI manifest themselves in academic and career choices (Mitchell, 1985), and for this reason, the MBTI is often helpful in career counseling (Pinkney, 1983; Sharf, 1992).

Statement of the Problem

Career maturity is one aspect of career development. It refers to planfulness and preparedness to make a credible career decision (Super, 1990). Career maturity represents a level of personal growth in the process of career development wherein one is able to cope with the task of making an effective career decision. One of the cognitive variables of career maturity listed by Super (1990) is "knowledge of the principles of career decision making and the ability to apply them to actual choices" (p. 213). This concept of career maturity incorporates a specific career decision making process within its definition. The CDI refers to such processes in terms of ways of gathering information, types of information gathered, and as an attitude of planfulness (Super et al., 1984). Super (1990) only briefly referred to that process, even though he pointed out that decision making is central to career development. The decision making theories upon which Super

based his concept of career maturity give an explicitly stated bias for factual data gathering and logical, rational decision making (Gelatt, 1962; Harren, 1979). In addition, there is a bias toward a decision strategy of finding a single choice over a strategy of creating career options.

Alternative styles of decision making were subsequently found to be equally effective (Krumboltz, 1979; Phillips, Paziienza, & Walsh, 1984). That information was not incorporated in theory updates. Concerning the bias toward single choice decision strategy, it has been proposed that in a rapidly changing environment different career decision strategies must be considered to cope effectively with the pace of change (Gelatt, 1989). Writers in the area of creative thinking suggest effective alternative strategies of thinking and deciding (de Bono, 1970, 1992). Super's career development theory does not reflect the most current research on decision making and decision strategy.

Psychological type, as measured by the MBTI, has been proven to be related to various kinds of cognitive functions (Myers & McCaulley, 1985). Psychological type categorizes individuals by preference for ways of gathering information, called Perception, and preference in ways of making decisions, called Judgment. One type of Perception (Sensing) is to gather concrete facts. One type of Judgment (Thinking) is to consider information through a logical, objective process. The problem under investigation is that

career maturity, as it is now defined by theory, implies that behavior must fall under one specific set of psychological type functions to be considered career mature.

Purpose of the Study

It is a fundamental premise of this study that Super's theoretical conceptualization of career maturity, as it is now stated, restricts career maturity to certain personality types, specifically Sensing, Thinking, and Judging. This study will investigate the relationship between psychological type and career maturity to discover if career maturity is limited to one specific way of gathering information, one style of decision making, and one decision strategy.

If psychological type affects career maturity, then there are consequences to be considered in career counseling. Clients whose preference is to gather information and come to decisions in ways other than those defined by the concept of career maturity may not be considered career-mature. For example, an adult client who prefers not to make a final decision but to remain open to new information, may be seen as lacking in career maturity because of the hesitation to make a firm decision. This client may be an MBTI Perceptive type who prefers "keeping options open" as a decision making strategy. Career counselors may be trying to focus on level of career maturity with an individual who is already career mature,

but in a way that is not within the current definition of the acceptable process for the task. A flexible decision strategy is supported by Gelatt (1989). He proposed that counselors must encourage a fluid or adaptive stance in contemplating career planning and decision making. Flexibility is advantageous in the current fast changing environment of work and careers in the United States.

Another case in point would be a client who seems to pay little attention to the traditional career information provided--employed adults, printed materials, and career library resources. This client may have chosen an occupation through an internal sensing system and cannot express exactly how the information was gathered. The counselor may consider this behavior as a sign of a lack of career maturity. This client is an MBTI Intuitive type. This client prefers, on a less than conscious level, to sift and synthesize information. Thus, that which could be a career mature way of gathering information for an Intuitive individual could easily be judged as lacking in career maturity by the traditional standard.

Alternative styles of information gathering may actually be helpful to certain individuals. In the case of minorities and women, who may perceive traditional sources of information as biased and discouraging, using alternative sources could be a productive and encouraging way to validate personal career aspirations.

Although it is important to understand the different factors of career choice (decision strategy, information gathering processes, and decision making), it is critical to comprehend the ways they define, inform, or relate to each other. No one instrument can fully apprise counselors of the career information/ decision process, because the process itself is multidimensional. The relationships of the constructs employed in the instruments are of interest to counselors who must interpret the information to clients. By understanding the constructs and how they relate to one another, counselors can gain a deeper, more complex and accurate understanding of the interactive information provided by the instruments as a whole.

Research is needed to investigate the nature of the relationship between career maturity as defined by Super's theory and model and psychological type. Knowledge of the specific meaning of the construct of career maturity through its relationship to MBTI psychological type is needed for counselors to identify, for example, ways students gather information and come to conclusions. Such knowledge can potentially be used in individual career counseling and in developing remedial career counseling programs for targeted students. It is also useful to encourage people to use alternative methods of perception and decision making so that clients can use all available resources in their search for an appropriate career choice.

This study is intended to explore the relationship of the constructs of career maturity, as measured by the CDI, and personality type, as measured by the MBTI. If certain psychological types possess the same characteristics which define career maturity, it can be concluded that either those who possess certain personality types tend to be career mature, or that career maturity as a construct could be redefined to include other ways of gathering information and decision making. If there is no relationship between the constructs, then the implications should be considered in the areas of theory, practice and the training of counselors. As an outcome of this study, there will be some clarification of the construct of career maturity and of the appropriateness of the interpretations made in relationship to psychological type. This can add to the maturity of the research base of the CDI by clarifying the relationship of the construct of career maturity to a well-known and mature theory of psychological type.

Definition of Terms

Career Maturity is "the individual's readiness to cope with the developmental tasks with which he or she is confronted because of his or her biological and social developments and because of society's expectations of people who have reached that stage" (Super, 1990, p. 213). This readiness to make a career decision, according to Super, is both affective and cognitive (Super, Thompson, Lindeman,

Jordaan, & Myers, 1981). The two affective variables are planfulness (career planning) and curiosity (career exploration) (Super, 1990). The three cognitive variables are:

knowledge of the principles of career decision making and ability to apply them to actual choices; knowledge of the nature of careers, occupations, and the world of work; and knowledge of the field of work in which one's occupational preference falls. (Super, 1990, p. 213)

Psychological Type is a set of individual preferences regarding perception and judgment which produces a recognizable set of traits and potentialities (Myers, 1980). Type is created from four dichotomous preferences. These preferences include Extraversion-Introversion, Sensing-Intuition, Thinking-Feeling, and Judgment-Perception. Sensing-Intuition and Thinking-Feeling are called functions or processes (Myers, 1980).

Extraversion-Introversion represents an attitude or orientation. Extraversion is a focus of attention on the outer world of people and objects. Introversion is a focus of attention within one's own position or inner world (McCaulley, 1981).

Judgment-Perception is an attitude or orientation toward the outer world. Judgment is a preference for living a planned, orderly existence. Judging types tend to prefer to regulate and control life. They create structure,

organization, and predictability in their environment. They like to have decisions made and settled.

Perception is a preference for living in a spontaneous and flexible way. Perceptive types tend to prefer to understand the world rather than to control it. They prefer to gather information and keep their options open or undecided.

Sensing-Intuition is a function of the attitude of perception and is the process by which one becomes aware of ideas or things. Sensing refers to perception by way of the five physical senses. Sensing types tend to be highly observant, have a memory for facts, and have a capacity for realism. They tend to have established ways of doing things, usually reaching conclusions in a step by step process (McCaulley, 1981; Myers, 1987).

Intuition refers to perception by way of the unconscious. Intuitive types are attuned to possibilities, meanings, and relationships beyond the physically verifiable facts. Intuitive types tend to look for essential patterns at abstract and theoretical levels. They use imagination, value creativity, and follow their inspirations (McCaulley, 1981; Myers, 1987). People tend to prefer to use one of these two distinct ways of perceiving (Myers, 1980).

Thinking-Feeling is a function of the attitude of judgment or decision making (Myers, 1987). Thinking refers to coming to conclusions by way of logical analysis.

Thinking types tend to be organized, to recognize flaws or problems, to analyze consequences and implications, and to be objective (McCaulley, 1981; Myers, 1987). Thinking types function in these ways characteristically as a basis for decision making.

Feeling refers to coming to conclusions based on personal valuing. Feeling types tend to have a sensitivity about what is important to other people and to themselves. They tend to have a need for affiliation, harmony in relationships, and have a capacity for warmth (McCaulley, 1981; Myers, 1987). Feeling types function in these ways characteristically as a basis for decision making. People tend to prefer to use one of these two distinct ways of judging (Myers, 1980). Through the definition of psychological preferences, one can understand how individuals prefer to gather information and come to decisions.

Psychological type is a combination and interaction of the preferences (Myers, 1987). Each combination of types tends to produce interactive outcomes that differ from another type. The combination of Perception and Judgment, for example, of one who gathers the facts and analyzes them logically (Sensing/Thinking), would reveal a different set of preferences than one who tends to consider future possibilities through a decision strategy based on forecasting how others will feel about those possibilities

(Intuition/Feeling). Type combines different ways of data gathering (Sensing or Intuition) and decision making (Thinking or Feeling), and those combinations are influenced by preference for attitude toward the outer world (Judgment or Perception, Extraversion or Introversion).

Research Question

1. Is the construct of career maturity related to specific categories of psychological type?

Summary

One primary concept of Super's theory of career development and choice is career maturity. The terminology used to define career maturity is linked to psychological type in the areas of information processing and decision making. The next chapter will review the literature on career maturity, psychological type, cognitive functioning, and decision making theory to explore past research and integrate it with the present investigation.

CHAPTER II

LITERATURE REVIEW

The relationship of the constructs of career maturity and psychological type have not been addressed in the literature to date, yet both are used in career counseling. However, recent scholarly work on the development of career theory associates the Myers-Briggs Type Indicator (MBTI) with the Career Development Inventory (CDI), which assesses career maturity (Super, Osborne, Walsh, Brown, & Niles, 1992). Super (1990) stated that career maturity includes cognitive and affective components. Psychological type has been extensively studied in relation to cognitive function and affect (Myers & McCaulley, 1985). Decision making styles are cited by Super (1990) as central to career development. These styles appear to have a direct relationship to psychological type.

Career Maturity

The concept of career or vocational maturity was envisioned by Super (1955, 1957; Super, Crites, Hummel, Moser, Overstreet, & Warnath, 1957) as being a basis for describing and assessing the career related developmental level of an individual, types of career related tasks and how the individual deals with the tasks, and the individual's readiness for career decision making. Super

and Kidd (1979) recognized that career maturity was a multidimensional trait which was being inadequately measured by unidimensional instruments. Super intended to develop a multidimensional measure of career maturity in the CDI.

The construct of career maturity is measured by the CDI. The individual scales of the CDI include World of Work Information (WW), Decision Making (DM), Knowledge of Preferred Occupational Choice (PO), Career Planning (CP), and Career Exploration (CE). All of the individual scales measure, in some degree, career maturity (Super, Thompson, Jordaan, Lindeman, & Myers, 1984, p. 20). Correlations between different scales range between .12 and .74. The correlation between PO and WW, ranges from .40 to .47. The most highly correlated scales are DM and WW with correlations from .66 to .74 (Super, Thompson, Jordaan, Lindeman, & Myers, 1984).

Validity studies are reported through test-retest canonical correlations in high school and college students (Super, Thompson, Jordaan, Lindeman, & Myers, 1984). For high school samples, the results of discriminant analysis revealed two functions as statistically significant. The first function is attitudinal (CP and CE), with a considerable cognitive component (DM). The second function which revealed a significant difference in scores over high school years was the cognitive function (DM and WW). The high school students were divided on the basis of school records

into groups of grade level, gender within grade, and program (General/Academic/Vocational). The pattern of weights for various scales conformed to theoretical predictions. For example, theory would predict that Vocational and Academic program students, when compared with General program students, would have less information about the world of work in general and more information about a specific occupation. The results of the discriminant analysis did indicate that Academic and Vocational program students had more information about a specific occupation and less information about the general world of work than did General program students. Such results are consistent with the kinds of program differences one would expect in the CDI scales, and were cited as evidence of construct validity for the CDI.

In reviewing a factor analysis of the CDI and the college sample, it was reported that affective and cognitive factors were represented by the 5 CDI scales. Canonical correlations confirmed the expectation that there would be correlations between the two sets of CDI scales (CP/CE and DM/WW/PO) defining the two factors (affective and cognitive).

Super (1990) concluded that career maturity has affective and cognitive aspects. The cognitive aspects include acquisition of information, career decision making, knowledge of oneself, "realism in relating self to

situational information, and consistency of career objectives with flexibility in realistically modifying them with experience" (Super, Thompson, Lindeman, Jordaan, & Myers, 1984, p. 7). These characteristics were derived originally from the Career Pattern Study (Super, Crites, Hummel, Moser, Overstreet, & Warnath, 1957). The type of information referred to in the Career Pattern Study was factual information about self and occupations gained through external resources such as books, workers, and personal experience in jobs (Super, Crites, Hummel, Moser, Overstreet, & Warnath, 1957).

Career maturity, as defined by the CDI, is a multidimensional construct that is affected by internal as well as external sources of influence (e.g., gender, socialization, development, identity, motivation, and internalization of goals and values). Pedro (1982) studied career maturity in high school females and found that career maturity scores for women must take into account achievement orientation (anticipation of direct or vicarious fulfillment of career plans). Pedro concluded that career maturity scores must be viewed in the context of the direct career planning involvement level of the women. Raskin (1985) studied women and career decision making and concluded that there are important age and gender differences in occupational identity status which affect decision making and are not considered in career development theories.

Blustein (1989) studied factors that influence career exploratory activity in late adolescence and early adulthood (college). Results indicated that exploratory activity was linked to internal motivational processes, including internalized goals and values which increase one's self confidence, thereby fostering an active approach. Blustein (1987a) reported in two studies of 175 undergraduates that self-monitoring orientation and an internal locus of identity were related to the cognitive components of vocational maturity. Rodriguez and Blocher (1988) reported that career maturity can be increased in women college students through planned interventions. Krumboltz (1979) found that appropriate decision making training can increase the level of career maturity in college students.

Career maturity is a multidimensional construct that is affected by internal as well as external sources of influence. The research cited points to factors such as locus of control, motivation, locus of identity, self-monitoring orientation, occupational identity status, self-confidence, internalized goals and values--all having some relationship to level of career maturity. It seems, at this time in the research, there are many dimensions being discovered. The process of specifying the construct of career maturity is still being explored.

Career Maturity and Career Decision Making

An area of theoretical work that is implicit in the construct of career maturity is that of career decision making. Career decision making is defined as "a strategy for obtaining and processing information about oneself and particular vocational options" (Jepsen, 1973, pp. 17-18). Jepsen and Dilley (1974) reviewed the dominant vocational decision making models previous to 1974. Their review included the work of Tiedeman (1961), Tiedeman and O'Hara (1963), Hilton (1962), Vroom (1964), Hsu (1970), and Fletcher (1966). The authors concluded that there were substantial differences between models in the assumptions made about decision making and the conditions under which decisions are made. Research had not yet confirmed or denied the assumptions which were being proposed.

Jepsen (1973) is cited by Super as an influential career decision making theorist (Super, 1990). In his study Jepsen identified "strategy types" of decision making, which were grouped patterns of decision making he had discerned. He grouped high school students according to type of planning, range of outcomes, and specificity and level of goals. Jepsen identified two styles: (a) Active Planners, and (b) Singular Fatalists. Active planners were active, knowledgeable, self-aware decision makers. Singular fatalists focused their rationale for decision making on self-appraisals, sought little career information, and had

low involvement in career exploration. There was a bias in the theory toward active planners as being the best decision makers, with an implicit assumption that the internalized reliance on self-appraisal used by singular fatalists was inadequate and that lack of interest in external career information was a definite fault. There was no follow-up research which verified those assumptions.

Super (1990) directed attention in particular to Harren's (1979) work on decision making styles. The background work of Harren's career decision making model was in decision making theory (Tiedeman, 1961; Janis & Mann, 1977), the field of cognitive dissonance (Wicklund and Brehm, 1976), developmental theory (Chickering, 1969), and self-concept theory (Super, Starishevsky, Matlin, & Jordaan, 1963).

Harren (1979) postulated four interrelated parameters of his career decision making model. They included Process, Characteristics, Tasks, and Conditions. Process was the core of the model. It is of most interest to this study of career maturity because Process gives specificity to what is referred to simply as "the principles of career decision making" (Super, Thompson, Lindeman, Jordaan, & Myers, 1981, p. 2), in defining the decision making scale of the CDI and in understanding "planfulness," as used in reference to career maturity. Process is a four stage sequential decision making operation of making and carrying out

decisions. Two characteristics were postulated to influence the operation of decision making: (a) Self-concept, and (b) Style.

Style is of particular interest to this study due to its definition of how decision making is carried out. Style is defined as "the individual's characteristic mode of perceiving and responding to decision making tasks, or the manner in which the person goes about making decisions" (Harren, 1979, pp. 124-125). There are three styles: (a) Rational, (b) Intuitive, and (c) Dependent. The dependent style involves projection of responsibility and a reliance on the expectations and desires of others. It is a decision style which has been proven to be "damaging, particularly in early stages of the decisional process" (Phillips, Paziienza, & Walsh, 1984, p. 96). Thus, because of its counterproductive effect on career maturity, the dependent style is not considered in this study.

Harren specifically defined two of the styles as follows:

Rational. This style is characterized by the ability to recognize the consequences of earlier decisions for later decisions. It requires an extended time perspective in which several sequential decisions are viewed as a means-end chain. The individual anticipates the need to make decisions in the future and prepares for them by seeking information about self and the anticipated situation. The individual's decisions are carried through deliberately and logically. They are effective to the degree that accurate information about the situation is acquired and the individual's self-appraisal is realistic. This style represents the ideal of the self-actualizing

decision maker; one who is the architect of one's own future as one lives it.

Intuitive. As in the rational style, the individual decision maker accepts responsibility for decision making. The intuitive style, however, involves little anticipation of the future, information-seeking behavior, or logical weighing of factors. Rather, it is characterized by the use of fantasy, attention to present feelings, and an emotional self-awareness as the basis for decision making. Commitment to a course of action is reached relatively quickly, and its basic "rightness" is felt internally. Often the individual cannot state explicitly how he or she decided. This style is less likely to result in effective decision making than the rational style, due to fluctuations over time in the individual's internal state and to limited capacity to accurately represent an unfamiliar situation in fantasy. (p. 125)

The adoption of a rational decision making style is presumed to be associated with more methodical information gathering, better integration of acquired information, greater competence in decision making and, thus, with enhanced vocational maturity (Super, 1990). Harren's model was cited by Super (1990) in discussing influential career decision making theories. It was noted by Harren (1979), however, that his assumption concerning the effectiveness of these decision styles had not been proven, and he suggested there was a need for research to verify the assumptions.

Phillips, Paziienza, and Walsh (1984) studied the relationship between decision style (rational, intuitive, and dependent) and progress in making an occupational decision. The study employed two sections of the Assessment of Career Decision Making (Buck & Daniels, 1984; Harren, 1984) to assess decision making style and progress in making

an occupational decision. The dependent decision making style contributed significantly to the regression equation, but the rational and intuitive styles failed to contribute significantly to the regression equation. In other words, the dependent style influenced decision making (in a negative way), but the other styles did not differentially influence decision making. The authors drew the conclusion that there is no support for the assumption that a rational style is more effective in making progress on an occupational decision than is the intuitive style.

Other evidence supports the position that both rational and intuitive decision making styles can be effective in the decision process. Phillips and Strohmer (1982, 1983) examined the relationship of effective decision making and a vocational task. They concluded that vocational maturity cannot be predicted by rational or intuitive decision style, since both styles appeared to facilitate progress on the specific career decision making tasks relevant to college students. A study by Rubinton (1980) concerning training for decision making concluded that decision making style itself did not differentiate level of vocational maturity prior to training. Krumboltz (1979) found that rational decision makers and intuitive decision makers responded with gain in level of vocational maturity only when trained for decision making in a matched style. Essentially, rational decision makers gained in level of vocational maturity when

trained in rational decision making methods and intuitive decision makers gained in level of vocational maturity when trained in intuitive decision making styles. He concluded that rational decision making models do not in all cases increase level of vocational maturity or competent decision making. Furthermore, he concluded that intuitive styles contribute to vocational maturity in certain cases.

In a study by Blustein (1987b) it was found that the rational style is effective under specific conditions. He reported in a study of community college students that reliance on the rational style was the only significant decision making style predictor of vocational maturity; the dependent and intuitive decision making styles did not add significant increments to the regression equation. Blustein's hypothesis was that in his intentionally selected community college sample, the subjects lacked other experiences and advantages (educational, socioeconomic, and vocational) which add to vocational maturity in comparison to students who attend 4-year universities; and a rational style "would be more important to individuals who do not have access to the traditional contributors to vocational maturity" (p. 61). Thus, Blustein concluded that the rational decision style would be effective for students with limited backgrounds, but not necessarily effective for others who had more sources of informational input.

Psychological Type and Cognitive Function

Cognitive factors are present in both psychological type and career maturity. The cognitive factors of career maturity include ability to apply principles of career decision making, career awareness, and occupational knowledge (Super, Thompson, Jordaan, Lindeman, & Myers, 1984). Psychological type, as measured by the MBTI, has proven to be related to various kinds of cognitive functions.

Several areas of academic functioning are related to type. Crockett and Crawford (1989) found that type influenced attention to the immediate details of academic planning and implementation. Apostol (1988) found that type influenced decidedness on college major. Baker (1981), Myers and McCaulley (1985), and Moody (1988) found that psychological types are predictably clustered in certain college majors. McCutcheon, Schmidt, and Bolden (1991) examined type as measured by the MBTI and teaching behavior ratings. They concluded that psychological type can be appropriately used by career counselors to direct teachers into certain specialties within teaching. Lawrence (1984) reviewed 29 studies relating learning style and teaching style to psychological type. He concluded that "research outcomes offer justification for type theory to be used more extensively as an organizing construct for experiments in teaching and learning" (Lawrence, 1984, p. 13).

Drummond and Stoddard (1992) investigated the relationship of psychological type to learning style in undergraduate subjects. Using the Gregorc Style Delineator (Gregorc, 1985) and the MBTI, they observed significant differences in learning style which varied according to MBTI personality type. The main differences concerned the ways participants perceived and ordered information or ideas. In investigating intellectual development as influenced by psychological type, Bruhn, Bunce, and Greaser (1978) concluded that, "in general, correlations between personality type, aptitude, and achievement were positive for males and females for Extraversion-Introversion, Sensing-Intuition, and Judgment-Perception" (pp. 773-774). Ehrman and Oxford (1990) found that certain psychological types--Introversion, Intuition, Feeling, and Perception--proved to be a language learning advantage over other types.

Ferguson and Fletcher (1987) found that type influences performance on certain tests and on specific kinds of tasks. In their study 77 college students completed the MBTI and measures of memory, cognitive complexity, verbal ability, and selective attention and recall. Their analysis showed that type preferences are related to variations in cognitive style. The way participants organized their thought structures influenced the participants' use of those structures in dealing with tasks.

There are other cognitive functions which show a relationship to type. Sipps and DiCaudo (1988) found support for the Judgment-Perception scale as a measure of impulsivity. They used the MBTI and a scale measuring impulsiveness to compare planfulness and impulsivity to the MBTI Judgment-Perception scale. They found a significant relationship between psychological type on the Judgment-Perception scale and impulsivity or planfulness. Likewise, Sipps and Alexander (1987) found in a construct validity study of MBTI scales that "the MBTI Judging/Perception scales were found to be factorially valid measures of impulsivity/non-planning" (p. 543). Thus, the cognitive variable of how impulsive one is in making a career decision or how planful one is in making a career decision could be influenced by psychological type.

Boreham (1987) found that there were psychological type differences in making causal attributions in problem solving. Boreham compared responses of Intuitive and Sensing types to define a malfunction in operating a computer-based data bank. Outcome was measured by (1) extent of their causal attributions and (2) their use of information-gathering control operations. Boreham concluded that Intuitives made significantly more causal attributions to factors not immediately perceived than did Sensing types. There appear to be type differences in awareness of factors that influence problem solving.

Dillon and Weissman (1987) examined relationships between Holland's (1985) personality types and MBTI personality type. They found significant relationships between inventoried interests and psychological type preferences, leading to the conclusion that career selection could be based on interests, preference functions and attitudes. Psychological type preferences in this study correlated with career interest patterns, and thus, could provide cognitive input into decision making.

Carey, Fleming, and Roberts (1989) found that the MBTI measured some aspects of cognitive style. They found that subscales of Judging-Perception and Sensing-Intuition correlated significantly with the measure of field dependence-independence. Similar results in a study by Schmidt and McCutcheon (1988) confirmed that conclusion. They tested 210 undergraduate and graduate students, concluding that field-dependent and field-independent cognitive styles have some commonality with psychological type.

Carskadon and Knudson (1978) found relationships between conceptual systems and MBTI personality types. They gave 137 college students the MBTI and a test identifying conceptual systems (See Harvey, Hunt, & Schroder, 1961). Sensing types were more likely to be found in the lower conceptual systems and Intuitive types were more likely to be found in the higher conceptual systems. This research

established a relationship between conceptual systems and preferences for Sensing and Intuition. As an example, this study points out that psychological type differentiates whether a person is more tied to concrete and tangible objects and information in the environment, such as printed career information, rather than less tangible and more abstract information in the environment, such as an intuitive sense of interpersonal fit in an organization's cultural environment. The effect of psychological type on cognitive style could influence career exploration and decision making tendencies.

Davis, Grove, and Knowles (1990) classified 96 graduate students into one of four decision making styles using MBTI psychological type. They found a significant difference in cost performance produced as a result of decision making style categorization by type. Psychological type delineates decision making styles clearly enough that subjects with different type classifications produce significantly different outcomes in performance.

Thus, the research literature has provided evidence of significant relationships between psychological type and various kinds of cognitive functions, including but not limited to those cognitive functions used to define career maturity.

Psychological Type and Decision Making

The Thinking-Feeling scale of the MBTI is described as "opposite ways of making decisions or judgments about something" (Myers, 1962, p. 6). The Thinking-Feeling scale is a function of the attitude of judgment or decision making (McCaulley, 1981; Myers, 1987). The Judgment-Perception scale represents an attitude or orientation toward the outer world. Judgment is a preference for living a planned, orderly existence, and to have decisions made and settled (McCaulley, 1981). Perception is a preference for living in a spontaneous and flexible way, continuing to gather information, and keeping options open or undecided. Psychological type represents preferences for certain ways of making decisions and preferences for closure (decided) or flexibility (undecided) as an orienting attitude. In addition, studies have found significant relationships between decision making style on the MBTI and decision making behavior. Henderson and Nutt (1980) found that cognitive style was an important factor in the decision to proceed in a business project and in the assessment of risk.

Researchers cited previously (Sipps & Alexander, 1987; Sipps & DiCaudo, 1988) found a significant relationship between psychological type on the Judgment-Perception scale and impulsivity or planfulness, both of which are dynamics of decision making. Schweiger and Jago (1982) studied 62 graduate business students and decision making methods.

They found a relationship between MBTI psychological types of Sensing-Intuition and Thinking-Feeling with choice of autocratic versus participative decision making methods as measured by a standardized problem set. They concluded that the MBTI represents preferences which are translated into decision making behaviors in actual work environments.

Harren's (1979) decision styles of rational and intuitive are conceptually linked to psychological type through the Thinking-Feeling, Sensing-Intuition, and Judgment-Perception scales of the MBTI. Descriptions of Harren's (1979) proposed decision making styles and Myers (1962) typology are consistently similar, as is exemplified in the following comparisons:

Rational

(1) Harren (1979) described rational types as being able to "recognize the consequences of earlier decisions for later decisions..."(p.125). Myers (1962) described Sensing types as able to "apply experience to current situations (p. 26),...apply what they have already learned,...like an established way of doing things" (p. 29).

(2) Harren (1979) described rational types as "anticipating the need to make decisions....and preparing for them by seeking information" (p. 125). Myers (1962) described Judging types as wanting "to make decisions, come to closure" (p. 6), and Sensing types as preferring to "keep track of essentials....to bring up pertinent facts" (p. 26).

(3) Harren (1979) described rational decision making as "carried through deliberately and logically" (p. 125), while Myers (1962) described Thinking types as making decisions "by analyzing and weighing the evidence.... [seeking] an objective standard of truth" (p. 6), and "putting things in logical order" (p. 29).

(4) Harren (1979) described rational decision makers as "effective to the degree that accurate information about the situation is acquired and the individual's self-appraisal is realistic" (p. 125). Myers (1962) described Sensing types as "careful about the facts....good at precise work... realistic" (p. 29).

Intuitive

(1) Harren's (1979) intuitive style is described as being "characterized by the use of fantasy" (p. 125). Myers (1962) described Intuitive types as "aware of new challenges and possibilities....focus on how things could be" (p. 29).

(2) Harren's (1979) intuitive style is described as attending to "present feelings, and an emotional self-awareness as a basis for decision making" (p. 125). Myers (1962) described the Feeling type of decision making as deciding "through....feeling" (p. 6) and a tendency to "respond to people's values" (p. 29). In addressing Intuitive types she further stated, "When making a decision for yourself, you ask how much you care, or how much personal investment you have" (p. 6).

(3) Harren (1979) described intuitive decision making in which "a commitment to a course of action is reached relatively quickly" (p. 125). The Perception scale of the MBTI has been shown in studies to be a measure of impulsivity (Sipps & Alexander, 1987; Sipps & DiCaudo, 1988).

It is logical, then, to conclude from the matching descriptions that these decision making styles and psychological types correspond conceptually. Furthermore, it could be concluded that the decision making styles of rational and intuitive are essentially the same processes as described by psychological type using the scales of Sensing-Intuition, Thinking-Feeling, and Judgment-Perception.

The constructs that make up MBTI psychological type and career maturity share common definitions. These common definitions concern the following: specified cognitive functions such as ways of gathering information and types of information valued, decision making style and process, and preference for ways of being either organized and planned or flexible and impulsive in carrying out behavior. However, Harren's theory, to which Super (1990) referred in discussing career decision making, strongly favors the rational style and strongly disapproves of the intuitive style of decision making (Harren, 1979). If Super followed Harren's theory, then Super's construct of career maturity

will contain a bias in favor of the rational style of decision making.

Alternative forms of thinking and deciding are sometimes called "nonrational." Note that the naming of something in the negative tends to give it a negative connotation. The nonrational forms of perception and judgment have been discouraged since the sixteenth and seventeenth centuries when the role of science began to dictate all form and content of thought (Durant & Durant, 1961). Capra (1982) challenged the scientific world view introduced by Descartes, which demanded the strict principle of mechanistic objectivity in thinking and deciding. Capra pointed out that the universe has been proven to be more complex than Descartes imagined. Tracing the transition of thought from the factual solidity of Descartes and Newton to the fluid evolutionary theory of Darwin and the invisible facts of physics introduced by Einstein, Capra made the point that one can no longer consider only the sensible facts in problem solving. Objective facts may not represent reality. Some facts, such as those now recognized in the natural sciences, may not be evident to the five human senses, yet they are relevant to thinking and deciding. These discussions encourage a more inclusive attitude toward available methods of thinking and deciding and, thus, of perception and judgment.

It should be noted that although Super cited only the rational decision models, he did elude to the possibility that other effective decision models may exist (Super, 1984, 1990). Super (1990) referred to decision theory as a "new research frontier" (p. 221). Furthermore, Super (1984) stated that his theory of career development had "tended to neglect the processes by means of which...decisions are made" (p. 221). One could conclude from his superficial discussions of decision making that Super was less than certain about the supremacy of the rational model of decision making in reference to career maturity. Nonetheless, the words used to describe career maturity do endorse the logical, rational style of career decision making.

CHAPTER III

METHODOLOGY

The hypotheses for this research study are stated in the direction of finding a relationship between career maturity and psychological type. This relationship is hypothesized because of the similarity of terminology used to define certain components of career maturity and certain constructs of psychological type.

Hypotheses

1. Participants with Sensing-Thinking-Judging (STJ) type on the Myers-Briggs Type Indicator (MBTI) will score higher on the Career Development Inventory (CDI) scale of World of Work Information (WW) than will participants with the Intuitive-Feeling-Perceptive (NFP) type on the MBTI.
2. Participants with the STJ type on the MBTI will score higher on the CDI scale of Career Planning (CP) than will participants with the NFP type on the MBTI.
3. Participants with the STJ type on the MBTI will score higher on the CDI scale of Career Exploration (CE) than will participants with the NFP type on the MBTI.
4. Participants with the STJ type on the MBTI will score higher on the CDI scale of Decision Making (DM) than will participants with the NFP type on the MBTI.

5. Participants with the STJ type on the MBTI will score higher on the CDI scale of Knowledge of Preferred Occupation (PO) than will participants with the NFP type on the MBTI.

Population and Sample

The sample consisted of 173 undergraduate students attending the University of North Carolina Greensboro, a medium-sized, state-supported university. The students were enrolled in CED 210, a one-semester undergraduate course entitled "Career/Life Planning," during the 1988-89, 1989-90, and 1990-91 academic years. The goals of the course were to increase students' knowledge of their interests, values, and capabilities; become aware of opportunities in the world of work; learn the necessary employability skills to obtain and keep a job; and know how to develop, re-evaluate, and implement long-term career/life plans. Approximately 41% were seniors, 18% juniors, 23% sophomores, and 17% freshman. All testing was completed at the beginning of the course before instruction commenced.

Instruments

The Career Development Inventory. The Career Development Inventory (CDI; Super, Thompson, Lindeman, Jordaan, & Myers, 1981) is a 120-item inventory which measures attitudes and knowledge associated with career development and assesses readiness to make career decisions. Higher scores on each subscale demonstrate higher levels of the measured attribute. The CDI includes the following

scales: Career Planning (CP), Career Exploration (CE), Decision Making (DM), Knowledge of the World of Work (WW), and Knowledge of Preferred Occupational Group (PO). The composite scales include Career Development Attitudes (CDA), composed of the CP and CE scales; Career Development Knowledge (CDK), composed of the DM and WW scales; and Career Orientation Total (COT), composed of the CP, CE, DM, and WW scales. The COT is a measure of four important aspects of career maturity (Super, Thompson, Lindeman, Jordaan, & Myers, 1981).

Five of the CDI scales assess two group factors that underlie the stated dimension of career development. The conative factor is a behavioral or attitudinal tendency and the cognitive factor is a knowledge indicator. The forced choice responses on the CDI scales were scanned to ensure inclusion of a variety of responses as needed for psychological type.

The CP scale consists of 20 items concerning the student's reported career planning activities and degree of engagement in career planning. This scale also is an indicator of the students' knowledge of the kind of work they would like to do. It is a scale that assesses attitudes and reported planfulness.

CE is a 20 item scale half of which reports the student's assessment of sources of career information (ie. other adults, printed materials, media). The other 10

questions are a rating of the usefulness of the information received. This scale allows a comparison of the student's use of good and poor sources in reference to use reported by others. CE is an attitudinal scale.

DM consists of 20 sketches of people making career decisions. This scale is intended to assess the student's ability to apply knowledge to career decision making. It is a cognitive scale.

The WW scale is a cognitive scale consisting of 20 questions which test knowledge of career development tasks, occupational structure, and techniques for getting and holding a job. This scale, which tests occupational awareness and knowledge, is a cognitive scale.

PO is intended to place occupations into groups that interest the student the most. It measures knowledge of, for example, job characteristics, psychological requirements, education, duties, and some job hunting knowledge. This is a cognitive scale. CDA, CDK, and COT are scales that consist of combinations of the previously described individual scales. CDA is a combination of CP and CE. CDK is a combination of DM and WW. The COT is a combination of CP, CE, DM, and WW.

Pinkney (Mitchell, 1985) found in a review that internal consistency of the CDI is generally good, with median values from .78 to .89, except for DM (.67) and PO (.60). Items in the latter scales are not as homogeneous as

in the rest of the scales, thus predictions from those scales may be made with less assurance of validity. Pinkney reported that generally the definitions of constructs were theory related and had face validity. In an analysis by Punch and Sheridan (1985), the CDI was generally found to have stable and desirable psychometric properties.

All of the scales of the CDI measure, in some degree, career maturity. Correlations between different scales range between .12 and .74, suggesting that all of the scales overlap in measurement to some degree (see Table 1). The correlation between the WW and PO ranges from .40 to .50. The least correlated scales of DM and CP range in correlation from .12 to .23. The correlation between WW and DM ranges from .55 to .74.

Validity studies are reported through test-retest canonical correlations in two groups of high school students, grades 9 through 11, and of university freshmen (Super, Thompson, Jordaan, Lindeman, & Myers, 1984). Results of these studies support the construct validity of the CP, CE, DM, WW, and PO scales of the CDI.

The Myers-Briggs Type Indicator. The Myers-Briggs Type Indicator (MBTI; Myers, 1962) is a self-administering questionnaire in forced-choice format, which measures preferences of conscious functions and attitudes in normal populations. It is appropriate for subjects from the sixth

Table 1

Correlations of CDI Scales, Two Administrations

Scale	CP	CE	DM	WW	PO	CP	CE	DM	WW
CE	44	--							
DM	12	17	--						
WW	15	16	66	--					
PO	17	15	36	40	--				
CP	77	50	24	21	25	--			
CE	34	73	17	15	21	49	--		
DM	12	22	69	60	35	23	15	--	
WW	14	18	55	68	33	23	16	74	--
PO	17	14	42	47	63	26	22	45	50

Note. From Super, Thompson, Lindeman, Jordaan, & Myers, 1984. Reprinted by permission.

Decimals omitted

grade to adult. The theoretical basis of the MBTI was developed through the clinical experience C. G. Jung (1971) and the research of Isabel Myers (McCaulley, 1990). The instrument sorts people into groups according to personality type. Four dichotomous personality dimensions are measured with both polarities being strengths. The four dichotomous scales are Extraversion-Introversion, Sensing-Intuition, Thinking-Feeling and Judgment-Perception (Myers, 1962). Some of the functions measured by the MBTI manifest themselves in academic and career choices (Mitchell, 1985). For this reason, the MBTI is often used in career counseling.

Each scale represents a set of opposite preferences. The Extraversion (E)-Introversion (I) scale describes opposite ways of focusing attention. The Sensing (S)-Intuition (I) scale describes opposite ways of acquiring information or finding out about things. The Thinking (T)-Feeling (F) scale describes opposite ways of coming to conclusions or decision making. The Judgment (J)-Perception (P) scale describes opposite ways of dealing with the external world and how one chooses to orient oneself in dealing with the external world (Myers, 1987).

Type is a combination of preferences represented by letters. There are 16 possible combinations of type. Each combination of four scales produces a different set of interacting psychological preferences. For example, the

preferences of an Extraverted-Sensing-Thinking-Judging (ESTJ) type would tend to be opposite of the Introverted-Intuitive-Feeling-Perceptive (INFP) type. The strengths of one would likely be the weaknesses of the other (Myers, 1987). The EI scale was excluded from this study because there was no evidence in the literature of the EI focus of attention on the external or internal world as influencing variables related to career maturity.

Studies of type have reported significant results using combinations of type rather than single scales. Hunter and Levy (1982) reported on the effects of preferences for Sensing or Intuition in combination with Judging or Perception on field dependence. Schmidt and McCutcheon (1988) reported on combinations of four letter types and field dependence. Davis, Grove, and Knowles (1990) reported on two-letter type combinations for decision making styles. Appendix D of the manual for the MBTI (Myers & McCaulley, 1985) reported research results in tables of occupations listed according to combinations of types. Thus, it is not uncommon to isolate categories of type for research purposes. The two combinations of scales used in this study were Sensing-Thinking-Judging (STJ) and Intuitive-Feeling-Perceptive (NFP) because differential preferences between STJ's and NFP's represent the most contrasted grouping.

The MBTI is firmly based in Jungian theory, is widely-recognized, and has an extensive research base. Over 1500

studies are included in the manual of the MBTI (Myers & McCaulley, 1985). The literature shows strong support for MBTI construct validity (Carlson, 1989). As additional support for construct validity, Myers and McCaulley (1985) presented research-based type tables as consistent examples of distribution of type in various populations. The MBTI manual (Myers & McCaulley, 1985) further provided validity evidence through tables of actual product moment correlations with scales of 32 personality, interest, and academic tests (See pp. 177-206). Thompson and Borello (1986a, 1986b) reported on structure and item performance of the MBTI and on construct validity. Both investigations, on samples totaling 389 college students, supported the construct validity of the MBTI as well as the item weighting procedures.

Myers and McCaulley (1985) reported that reliabilities of the MBTI type categories have been computed by measures of internal consistency using split-half correlations. They noted two points which make reliability a complex issue with the MBTI. First, the MBTI scales were not established as continuous scores, thus, there was a difficulty in using reliability measurement that did not discriminate well at the center of the distribution. Second, the MBTI does not have an assumed underlying normal distribution. Carlyn (1976) suggested comparing phi coefficients (high estimate) and tetrachoric correlations (low estimate) and projecting

the actual correlations as falling between those estimates. Analyzing calculations of that procedure, Myers and McCaulley (1985) concluded that one could be as confident in correlations of type categories, including midpoint calculations, as with any personality test with similar reliabilities.

In recent years, the reliability of the MBTI has been improved, specifically through progress on the internal consistency indices (Levy & Padilla, 1982; Myers & McCaulley, 1985). Test-retest reliabilities confirm the stability of the four dimensions over 2 months with college students (Levy, Murphy, & Carlson, 1972), and over 3 years with ministerial students (Nauss, 1972). Studies have shown satisfactory split-half and test-retest reliabilities for the F and G forms (Carlson, 1985; DeVito, 1985). In an extensive review of research on the MBTI, Murray (1990) concluded, "Its indices of reliability and validity have been extensively investigated and have been judged acceptable" (p. 1199).

Collection and Analysis of Data

Test administration was completed at the beginning of the Career/Life Planning course. The CDI was sent to the publisher for computer scoring. The MBTI was hand scored with supervision and checked for accuracy before the scores were entered into the computer.

The data were analyzed using the Hotelling-Lawley Trace statistic. All hypotheses were analyzed with the same statistic. This statistic was chosen to most accurately determine the degree of association between the intercorrelated CDI scales and the 2 MBTI type categories. This study posed multiple questions and involved measures that were correlated. These conditions render the use of separate t-tests for each hypothesis questionable for two reasons. First, the actual alpha level for all questions was probably larger than .05. Second, because the CDI scales were intercorrelated, and thus not independent, conducting separate t-tests for each hypothesis would result in some redundancy. The Hotelling-Lawley Trace is a multivariate analysis of variance statistic which adequately addresses both problems. After computing the Hotelling-Lawley Trace, the resulting F statistic will be considered acceptable if it is significant at the .05 level.

Pilot Study

A pilot study was conducted to examine demographic data for descriptive information in the sample and determine if there were any useful partitions of the test data for statistical purposes. The 5 CDI scales tested were WW, DM, CP, CE, and PO. The 2 MBTI types were NFP and STJ. The demographic variables studied were gender, race, decided/undecided major, class level, and business/nonbusiness major.

The pilot study sample consisted of 56 undergraduate students attending the University of North Carolina Greensboro, a medium-sized, state-supported university. The subjects were enrolled in a one-semester undergraduate course, CED 210, entitled "Career/Life Planning" during the 1991 academic year. The age of these subjects ranged from 17 to 25, with a mean of 20.5 years. Approximately 41% were seniors, 18% juniors, 30% sophomores, and 1% freshman. Thirty percent of this sample were males and 70% were females. This was a sample of convenience chosen from a larger sample of subjects enrolled in the Career/Life Planning course because the cases contained sufficient demographic data.

Approximately 64% of the students were employed at least part-time. A t-test was computed to determine if responses on the 5 scales of the CDI of employed and unemployed subjects differed significantly (see Table 2) at the .05 level of significance. A t-test of employed versus unemployed subjects was not significant on any of the CDI scales at the .05 level. Theoretically, one would assume a difference would be found between subjects who have work experience and those who do not on cognitive or information scales such as WW and PO. However, it should be noted that this is only an indication of current employment status. There is no significant difference at the .05 level on the

Table 2

T-tests for CDI by Unemployment/Employment

Variable	n	T	Prob> T	Significance
<u>World of Work Scale</u>				
Unempl.	19	1.6233	0.1113	no
Employed	36			
<u>Career Planning Scale</u>				
Unempl.	19	-0.7123	0.4794	no
Employed	36			
<u>Career Exploration Scale</u>				
Unempl.	19	0.0622	0.9506	no
Employed	36			
<u>Decision Making Scale</u>				
Unempl.	19	1.2098	0.2317	no
Employed	36			
<u>Preferred Occupation Scale</u>				
Unempl.	19	-0.1328	0.8952	no
Employed	36			

CDI scales between those in this sample who are currently employed at least part-time and those who are not currently employed at least part-time.

Approximately 15% of the sample were undecided on a college major. A t-test was computed to determine if responses on the 5 scales of the CDI of decided and undecided majors differed significantly (see Table 3). In this sample at the .05 level there was no significant difference in responses on any of the 5 scales between decided and undecided majors. A comparison was also made of business versus nonbusiness majors to determine if there were response differences on the 5 scales (see Table 4). Business majors included accounting, finance, and business.

Table 3

T-tests for CDI by Decided/Undecided Major

Variable	n	T	Prob> T	Significance
<u>World of Work Scale</u>				
Undecided	8	0.1932	0.8161	no
Decided	48			
<u>Career Planning Scale</u>				
Undecided	8	-1.3916	0.0967	no
Decided	48			
<u>Career Exploration Scale</u>				
Undecided	8	-0.9446	0.3491	no
Decided	48			
<u>Preferred Occupation Scale</u>				
Undecided	8	-1.4428	0.1549	no
Decided	48			
<u>Decision Making Scale</u>				
Undecided	8	0.7619	0.4494	no
Decided	48			

Table 4

T-tests for CDI by Business/Nonbusiness Major

Variable	n	T	Prob> T	Significance
<u>World of Work Scale</u>				
Business	16	-0.7196	0.4794	no
Other	26			
<u>Career Planning Scale</u>				
Business	16	-0.1762	0.8611	no
Other	26			
<u>Career Exploration Scale</u>				
Business	16	-0.0673	0.9469	no
Other	26			
<u>Decision Making Scale</u>				
Business	16	-1.7975	0.0798	no
Other	26			
<u>Preferred Occupation Scale</u>				
Business	16	0.2373	0.8137	no
Other	26			

Nonbusiness majors included communications, education, political science, psychology, and science. There was no significant response difference between business and nonbusiness majors at the .05 level of significance on scores of the 5 scales of the CDI.

Approximately 70% of the sample were female subjects and approximately 30% were male subjects. These percentages mirror the population of the University of North Carolina at Greensboro, which averages 66% female and 34% male (Clark, 1993). A t-test was computed to determine if responses differed on the 5 scales on the CDI due to gender (see Table 5). At the .05 level there was no significant difference in responses on the 5 scales between males and females. This is in line with previous studies on the CDI which determined that there were no significant differences in response by gender (Phillips & Strohmer, 1983).

Approximately 27% of this sample were Asian or Black (Bl), and 94% of these subjects identified themselves as "Black." A t-test was computed to determine if there was a significant response difference on the 5 CDI scales due to race. At the .05 level there were no significant differences in responses on the 5 scales due to race (see Table 6).

A t-test was computed to determine if class level had a significant influence of scores of subjects on the 5 scales of the CDI. There were 2 freshmen, 16 sophomores, 11

Table 5

T-tests for CDI by Gender

Variable	n	T	Prob> T	Significant
<u>World of Work Scale</u>				
Female	40	1.0908	0.2892	no
Male	16			
<u>Career Planning Scale</u>				
Female	40	-0.6450	0.5217	no
Male	16			
<u>Career Exploration Scale</u>				
Female	40	0.3665	0.7154	no
Male	16			
<u>Decision Making Scale</u>				
Female	40	1.5198	0.1443	no
Male	16			
<u>Preferred Occupation Scale</u>				
Female	40	0.0274	0.9783	no
Male	16			

Table 6

T-tests for CDI by Race

Variable	n	T	Prob> T	Significant
<u>World of Work Scale</u>				
White	40	0.3873	0.7001	no
Bl/Asian	15			
<u>Career Planning Scale</u>				
White	40	-0.5242	0.6023	no
Bl/Asian	15			
<u>Career Exploration Scale</u>				
White	40	-1.5382	0.1299	no
Bl/Asian	15			
<u>Decision Making Scale</u>				
White	40	0.1879	0.8517	no
Bl/Asian	15			
<u>Preferred Occupation Scale</u>				
White	40	-1.0035	0.3202	no
Bl/Asian	15			

juniors, 27 seniors, 0 graduate students in the pilot study sample. Because of the low number of freshmen, the freshmen and sophomores were combined and compared with juniors and seniors. There were significant response differences on 1 of the 5 CDI scales (see Table 7). The CP scale revealed a significant response difference at the .05 level based on class level. A study by Phillips and Strohmer (1983) on the scales of the CDI determined that there were no significant differences in response by class level (Phillips & Strohmer, 1983). However, studies reported by Super, Thompson, Lindeman, Jordaan, and Myers (1984) report significant differences in discriminant analysis of class level. In

Table 7

T-tests for CDI by Class Level

Variable	n	T	Prob> T	Significant
<u>World of Work Scale</u>				
Fr/So	18	-0.8042	0.4299	no
Jr/Sr	38			
<u>Career Planning Scale</u>				
Fr/So	18	-2.7851	0.0096	yes
Jr/Sr	38			
<u>Career Exploration Scale</u>				
Fr/So	18	-0.6488	0.5192	no
Jr/Sr	38			
<u>Decision Making Scale</u>				
Fr/So	18	-1.145	0.2635	no
Jr/Sr	38			
<u>Preferred Occupation Scale</u>				
Fr/So	18	-1.9732	0.0536	no
Jr/Sr	38			

this sample, the CP scale revealed statistically significant differential responses by class at the .05 level. There was no difference in proportion of psychological type between class 1 and class 2.

The results of the pilot study indicated that 1 of the demographic variables tested influenced responses on 1 of the 5 CDI scales. The CP scale revealed a significant response difference at the .05 level based on class level.

The data in this larger sample consisting of 172 cases was analyzed to determine if class level significantly influenced responses on the CP scale. A t-test was used to compare the CP scale of the CDI with Class 1, consisting of

freshmen/sophomores, and Class 2, consisting of juniors/seniors (see Table 8). At the .05 alpha level class level did not reveal a significant response difference on the CP scale in the sample used in this study. The difference in responses by type on the CP scale in the smaller sample did not hold up in the larger sample, suggesting that there was a type I error involved in the outcome of the t-test on the smaller sample. Thus, according to the larger sample t-test, there is no need to partition the data with reference to the CP scale.

Table 8

T-test Between Type and CP/Large Sample Type

<u>Variable</u>	<u>n</u>	<u>T</u>	<u>Prob T </u>	<u>Alpha .05</u>
NFP	74	-1.1063	0.2702	Not significant
STJ	98			

CHAPTER IV

RESULTS

In this chapter a summary of the statistical analysis of the data will be presented as it relates to the research question and the hypotheses. The Hotelling-Lawley Trace was used to analyze the 5 variables of the Career Development Inventory (CDI) in relation to the 2 Myers-Briggs Type Indicator (MBTI) variables. The results of the multivariate analysis of variance are reported in the context of each hypothesis.

The research question asked if the construct of career maturity is related to specific categories of psychological type. The hypotheses followed that question by specifying that there would be a relationship between two type categories and each of the five scales of the CDI. Super (1990) cited decision theories as influential in the formulations of career maturity as measured by the CDI. Those theories cited proposed that the best decisions were made by people who were active, logical, and traditionally fact-based in the decision making process with a goal of coming to a singular decision. This description of information gathering and process of coming to conclusions is the same as the description of those whose preference on the MBTI is Sensing-Thinking-Judging (STJ). Those same

theories devalued decision processes that were intuitive, attended to the internal feelings of self, and gave consideration to nontraditional information sources with a goal of creating options rather than a decision. This style of decision making closely resembles the style used by those whose psychological type is Intuitive-Feeling-Perceptive (NFP) on the MBTI. Thus, it was hypothesized that scores on the 5 scales of the CDI would be higher for the STJ type than for the NFP type as measured by the MBTI.

Descriptive statistics for this sample of college students (see Tables 9 and 10) were comparable to those reported in the manuals of each instrument. Cases scoring lower than 15 on any MBTI scale were eliminated due to questionable reliability (Myers & McCaulley, 1985). Thus, means reported in Appendix C of the MBTI manual are slightly lower than those reported in this sample.

Hypothesis 1 stated that participants with the STJ type on the MBTI would score higher on the CDI scale of World of Work (WW) than would participants with the NFP type on the MBTI. The WW scale of the CDI is intended to measure the participant's ability to apply knowledge of decision making and career planning. It assesses an application of a cognitive skill as opposed to an attitude toward career planning. This scale could contain a bias for traditional information sources and objective data analysis. The STJ

Table 9

Descriptive Statistics for MBTI

Variable	mean	std dev	min	max
Sensing	34.3	12.7	15	63
Intuition	27.7	10.3	15	51
Thinking	29.0	10.9	15	57
Feeling	26.2	7.7	15	43
Judging	29.9	11.7	15	55
Perception	30.9	13.7	15	59

Table 10

Descriptive Statistics for CDI

Variable	mean	std dev	min	max
World of Work	100.0	18.6	34	133
Decision Making	97.5	18.3	34	138
Preferred Occupation	100.6	19.7	42	146
Career Planning	101.8	19.6	60	160
Career Exploration	101.5	20.2	42	191

types are hypothesized to score higher on this scale. The F value for that comparison was 0.36 and the probability of observing that value or larger when the null hypothesis is true is .5471. The MANOVA indicated at the .05 level of confidence that there were no significant response differences on the World of Work (WW) scale of the CDI due to the MBTI types of NFP or STJ, $F(1, 171) = .36, p < .05$. Hypothesis 1, which predicted a response difference between NFP and STJ types on the WW scale of the CDI, was not supported by the data in this research investigation (see Table 11).

Table 11

Hotelling-Lawley Trace for WW and Type

<u>Variable</u>	<u>n</u>	<u>F-Value</u>	<u>Prob F</u>
World of Work	172	0.36	0.5471

Hypothesis 2 states that participants with the STJ type on the MBTI would score higher on the CDI scale of Career Planning (CP) than would participants with the NFP type on the MBTI. On the CP scale, the participants recount their career planning activities. This scale measures attitudes and reported planfulness. It was hypothesized that since STJ types are more likely to seek information from traditional sources and show a preference for attitudes of planfulness similar to those emphasized as appropriate on the CP scale, they would score higher on the CP scale than

will the NFP types. The MANOVA indicated there was no significant response difference at the .05 alpha level on the Career Planning (CP) scale of the CDI due to the MBTI types of NFP and STJ. The F value for this test was 0.94 and the probability of F is .3347. Hypothesis 2 predicted a response difference on the CP scale of the CDI between NFP and STJ types, but no significant difference in participant responses was found on that scale, $F(1, 171) = .94, p < .05$. Hypothesis 2 was not supported by this study (see Table 12).

Table 12

Hotelling-Lawley Trace for CP and Type

<u>Variable</u>	<u>n</u>	<u>F-Value</u>	<u>Prob F</u>
Career Planning	172	0.94	0.3347

Hypothesis 3 stated that participants with the STJ type on the MBTI would score higher on the CDI scale of Career Exploration (CE) than would participants with the NFP type on the MBTI. The CE scale is intended to measure the quality of attitudes toward occupational exploration. These attitudes are assessed through participant ratings on the quality of various information sources and usage of these sources. The STJ types who prefer to use external and traditional sources of information were hypothesized to score higher on this scale than are NFP types. Analysis of the MANOVA indicated that at the .05 level of confidence there were no significant response differences on the Career

Exploration (CE) scale of the CDI due to the MBTI types of NFP and STJ. The F value on the Hotelling-Lawley Trace was 0.06. The probability of finding a value of 0.06 or larger when the null hypothesis is true was .8137. In this study hypothesis 3 was not supported, $F(1, 171) = .06$, $p < .05$. According to this analysis, there was no indication of a significant response difference due to type on the CE scale (see Table 13).

Table 13

Hotelling-Lawley Trace for CE and Type

<u>Variable</u>	<u>n</u>	<u>F-Value</u>	<u>Prob F</u>
Career Exploration	172	0.06	0.8137

Hypothesis 4 stated that participants with the STJ type on the MBTI would score higher on the CDI scale of Decision Making (DM) than would participants with the NFP type on the MBTI. The DM scale is a cognitive scale focusing on the participant's ability to apply principles of career decision making. Since antecedent decision theories contained a strong bias toward logical, objective decision making, the STJ types who prefer logical and objective decision making are hypothesized to score higher on the DM scale than are NFP types. The F value in the comparison of DM and type was 1.35. The probability of finding that value or larger when the null hypothesis is true was .2463. The MANOVA thus indicated at the .05 alpha level that there were no

significant response differences on the Decision Making (DM) scale of the CDI due to the MBTI types of NFP and STJ. Hypothesis 4, which predicted a response difference on the DM scale of the CDI between NFP and STJ types, was not supported by this analysis, $F(1, 171) = 1.35, p < .05$ (see Table 14).

Table 14

Hotelling-Lawley for DM and Type

<u>Variable</u>	<u>n</u>	<u>F-Value</u>	<u>Prob F</u>
Decision Making	172	1.35	0.2463

Hypothesis 5 stated that participants with the STJ type on the MBTI would score higher on the CDI scale of Knowledge of Preferred Occupation (PO) than would participants with the NFP type on the MBTI. The PO scale is a cognitive scale that is based on factual knowledge about occupations. The STJ types rely upon concrete facts and prefer to attend to factual information and, thus, were hypothesized to score higher on a measure of the knowledge of such information. The Hotelling-Lawley Trace was applied to the data to determine if there was a correlational relationship. The F value for the comparison of PO and type was 0.36 and the probability of finding that value or larger when there was no difference in responses was .5471. The MANOVA indicated at the .05 level of confidence that there were no significant response differences on the PO scale of the CDI due to

the MBTI types of NFP and STJ, $F(1, 171) = .36, p .05$. Hypothesis 5, which predicted a response difference on the PO scale of the CDI between NFP and STJ types, was not supported (see Table 15). The overall F statistic was .82 and with the probability of F as .5053, it was not significant at the .05 level, $F(1, 171) = .82, p < .05$.

Table 15

Hotelling-Lawley Trace for PO and Type

<u>Variable</u>	<u>n</u>	<u>F Value</u>	<u>Prob>F</u>
Preferred Occupation	172	0.94	0.3340

The means for the five subscales on the CDI were generally opposite to the direction predicted (see Table 16). The exception was the CP scale which was higher for the STJ type than for the NFP type.

The Hotelling-Lawley Trace is a conservative statistic intended to control for the influence of intercorrelated scales as a possible error in finding a relationship between variables. If any correlation exists, t-tests are more likely to predict correlation than the Hotelling-Lawley Trace, however, a relationship between the CDI and MBTI scales on a series of t-tests may be a reflection of intercorrelation of the CDI scales rather than correlation between the MBTI and CDI scales. In order to further investigate the possibility that the Hotelling-Lawley Trace

Table 16

Means of CDI Subscales

<u>Variable</u>	<u>mean STJ</u>	<u>mean NFP</u>
WW	99.2	101.0
CP	103.1	100.2
CE	101.1	101.9
DM	95.9	99.2
PO	99.4	102.3

statistic was under-predicting correlation, a series of t-tests were run on the data (see Table 17).

The results of the t-tests indicate that at the .05 level of confidence there were no correlations of the NFP or STJ types with any of the 5 CDI scales. Therefore, it can be concluded that the Hotelling-Lawley Trace was not too conservative to reveal correlations in this study. At the .05 alpha level, there were no significant correlations of the MBTI scales with the CDI scales using either statistical test.

Table 17

T-tests for NFP/STJ and 5 CDI Scales

<u>Variable</u>	<u>n</u>	<u>T-Value</u>	<u>Probability T </u>
World of Work	173	0.6105	0.5364
Career Planning	173	-0.9675	0.3347
Career Exploration	173	0.2360	0.8137
Decision Making	173	1.1634	0.2463
Preferred Occupation	173	0.9689	0.3340

CHAPTER V

CONCLUSIONS

The purpose of this research was to clarify the relationship of career maturity, as measured by the Career Development Inventory (CDI), and psychological type, as measured by the Myers-Briggs Type Indicator (MBTI). Career maturity is defined as the readiness to make a credible career decision (Super, 1990). Psychological type, derived from the work of Briggs and Myers (Myers, 1987) and Jung's theory of type (Jung, 1971), is a classification system of human behavior centered around basic differences in preferences for perception and judgment. Perception represents the ways people prefer to gather information. Judgment represents the ways people prefer to come to conclusions. The research question asked whether the construct of career maturity is related to specific categories of psychological type. Five hypotheses were formulated which compared specific scales related to career maturity with two psychological types.

A search of the literature revealed a word for word similarity in the description of the factors of career maturity and descriptions in the literature of psychological type categories. Descriptions of both measures specified ways of gathering information (Perception), and of coming to

conclusions or making decisions (Judgment), as well as attitudes toward the preference for decidedness as opposed to leaving options open. The theories which are seminal to the development of the construct of career maturity delineate a preference for gathering factual information from traditional sources, logical and objective decision making, and contain a bias toward decidedness.

The preferred ways of Perception (Sensing) and Judgment (Thinking) are reflected in the descriptions of type and are clearly divided along type category lines. For example, the CDI scales which are cognitive, such as Decision Making (DM), Knowledge of Preferred Occupation (PO), and World of Work (WW), emphasize gathering factual information from traditional sources. The Sensing scale of the MBTI similarly emphasizes a preference for gathering factual information from traditional sources. Intuitive types prefer gathering information through insight, thus, focusing on possibilities, meanings and relationships. It is reasonable to conclude that if the construct of career maturity developed precisely from the theories as stated, then psychological types would be correlated with career maturity.

The sample included 173 college students who voluntarily enrolled in a career/life planning course at the University of North Carolina at Greensboro. The course was designed to increase students' knowledge of their interests,

values, and capabilities; become aware of opportunities in the world of work; learn the necessary employability skills to obtain and keep a job; and know how to develop, re-evaluate, and implement long-term career/life plans. The data on voluntarily enrolled college students provided an opportunity to explore the relationship between psychological type and career maturity for this sample.

Statement of Outcome of Data Analysis

It can be concluded from the analysis of the data for this sample that the participants who are classified on the MBTI as Intuitive-Feeling-Perceptive (NFP) and Sensing-Thinking-Judging (STJ) do not score a significant response difference on the CDI scales of WW, CP, CE, DM, and PO. Specifically, in this sample, there were no significant response differences on the CDI between those participants who were NFP types, using insight oriented information gathering, value-based decision making, and generation of options; and those participants who were STJ types, using factual information gathering, analytical decision making, and a preference for decidedness. It can be concluded that, for the college students in this sample who voluntarily sought a structured career/life planning course, there was no relationship between differing psychological types and the participants' scores on the scales of the CDI. This outcome was observed even though theoretical explanations of the CDI scales and descriptions of the STJ type are very

similar, and the descriptions of CDI scales and descriptions of NFP types are oppositional.

This study revealed that the CDI as a measure of career maturity does not differentiate between STJ types and NFP types on three factors relating to career maturity. One, the CDI does not differentiate between 2 styles of information gathering (Sensing-Intuition). Two, the CDI does not differentiate between 2 styles of decision making (Thinking-Feeling). Three, the CDI does not differentiate between two styles of decision strategy or attitude (Judgment-Perception). Specifically, decision strategy includes coming to one exclusive decision (Judging) or deciding to pursue multiple options (Perception).

Explanations of Results

There are several possible explanations for this outcome. Career maturity, or readiness to make a credible career decision, may not reflect the application of personality preferences. Participants who are NFP types, even though their preferred ways of gathering information and coming to conclusions do not match those ways described as career mature, may be relying on functions which are not their preferred ways to come to a career decision. Despite their preferences, they may employ "career mature" processes to make a career decision. Thus, persons with the NFP type preference may adopt an STJ type when they are ready to make a credible career decision. This is unlikely because, for

any individual, the least preferred types are less developed and immature by definition (von Franz & Hillman, 1971).

According to type theory, when people try to use their less developed or "inferior" type, their behavior is predictably immature. It is reasonable to conclude that switching type for career decision making is not a viable explanation.

A second possible explanation is that career maturity has no relationship to personality type at all. Career maturity is a developmental construct. People develop component knowledge and attitudes over a lifetime in the direction of greater readiness to make a credible career decision. These components respond principally to age, education and opportunity. Personality type, although it is in a sense developmental, connotes a slightly different psychodynamic development by reinforcement of a predisposed preference for behavior and attitude. Psychological type and career maturity may simply be unique constructs that have no relationship other than similar descriptive vocabulary.

Related to this explanation is the possibility that there are intervening variables that temper the relationship between type and career maturity. For example, Bluestein (1989) found that greater self-confidence was a factor in the adoption of an active approach to career exploration. Intervening variables, such as self-confidence, strength of type development or an interaction of the two, could

influence the relationship between type and career maturity. This statement may contain some level of truth, but the possibility of intervening variables will have to await further research to analyze interacting relationships.

A third explanation is that although the CDI is purported to be based on theories that contain a bias along psychological type lines, those theories do not in fact specifically define the factors of career maturity in the CDI. The theories of decision making cited as a basis for career development theory by Super (1990) have not been substantiated in research. The research investigators have concluded that there are various effective ways of decision making concerning a career related choice (Krumboltz, 1979; Phillips, Paziienza, & Walsh, 1984; Phillips & Strohmer, 1982, 1983). In that sense, the instrument could be measuring career maturity in a more inclusive form than is presently implied in theoretical explanations. The CDI may in practice be more inclusive of ways of gathering information and coming to conclusions than is presently implied by the theory. This study supports that conclusion.

It is interesting to note that although Super (1984) cited rational decision models, he has chosen not to develop the decision making component of his theory. He hedges his endorsement of the rational models by stating, "These models have great appeal for psychologists, as they lend themselves well to guidance courses, but they make the assumption that

all people are rational" (Super, 1984, p. 221). Super (1984) concluded that there remains work to be done on detailing alternative ways of choosing and calls for further research (Super, 1990).

Just as the CDI may be more inclusive of decision models, the CDI also may be more inclusive of ways of gathering information than is presently implied by the theory. This study supports that conclusion. The third area of inclusion may be that of attitude toward planfulness or decidedness. The CDI may be an indicator that the participant has a way of perceiving information, and the participant has a way of coming to conclusions and that the participant has a strategy of planfulness. Furthermore, these are being employed by the individual to make a credible career decision. This would explain why participants who have differing ways of gathering information, differing ways of decision making, and differing attitudes toward planfulness, lack significantly differentiated responses on the CDI. The important factor is more a matter of indicating the presence of a strategy, rather than employing a particular strategy.

This explanation is supported by a quote from the CDI manual that hints at a broader acceptance of differing types. The CDI manual describes the cognitive aspects of career maturity in part as, "realism in relating self to situational information, and consistency of career

objectives with flexibility in realistically modifying them with experience" (Super, Thompson, Lindeman, Jordaan, & Myers, 1984, p. 7). This is a form of "type double-talk." "Realism" is typically a Sensing word. Sensing types are said to be realists, living in the present moment and attending to concrete facts. "Relating self to situational information" is Intuitive in its juxtaposing of the meaningful relationship between the internal self and the external situation. In addition, "career objectives" (note plural) are spoken of alternatively in terms of consistency and flexibility. Super refers to this consistency with flexibility as a career decision by successive approximations (Freeman, 1993). Such phrasing includes both the Judging attitude of consistency or predictability and the Perceptive attitude of flexibility or creating options open to change. This linking of discrepant types may imply that career maturity is more broadly conceptualized than the present statement of theory would indicate.

IMPLICATIONS OF RESEARCH

Implications for Theory

Super's developmental theory contains in its descriptive wording a preference for a category of information gathering which matches the Sensing type (Perception), a category of decision making which matches the Thinking type (Judgment), and a decidedness orientation toward the external world that matches the Judging type.

Furthermore, these preferences are written into the descriptions of the subscales of the CDI. The evidence of this research is that these descriptions of specific categories of Perception, Judgment and orientation are not correlated with scales on the CDI which define career maturity. The challenge to theory is to reconsider the strict bias toward certain preferences. Research has not validated the supremacy of the factual, logical/analytical, decidedness model as the only effective decision making process for career choice. Super (1990) based his conceptualization of career maturity, in part, on theoretical assumptions of decision making which have been proven to be invalid for career decisions. Research has revealed that there are two effective methods for career decision making, as reflected in the psychological types of STJ and NFP (Krumboltz, 1979; Phillips, Paziienza, & Walsh, 1984). These studies are supported by this research in specific application to the CDI. In addition, the present research extends that conclusion to information gathering and decision strategy preferences. This research suggests that in measuring career maturity, the CDI may indicate the presence of a method for information gathering, a method for decision making and a strategy for deciding or creating options, but does not discriminate based on MBTI personality types as to specific styles for those functions and

attitudes. Thus, an individual may be career mature by functioning within either set of preferences or types.

Implications for Career Counseling Practice

The MBTI is frequently used in career counseling (Pinkney, 1983; Scharf, 1992). Counselors may assume that all career decision makers should use one set of guiding principles about information gathering, decision making, and decision strategies, when these results indicate a broader acceptance of methods is appropriate. Accepting the last explanation to be reasonable, career counselors will not assume all clients should use STJ functions and attitudes for career decision making as is implied by career development theory. With this research and the Krumboltz (1979) research as support, counselors can assume that both the rational and intuitive styles of decision making can be effective if the individual is trained in the method congruent with her or his characteristic type. In addition, this research indicates the same premise holds true for information gathering and decision strategy. If information gathering is taught in congruence with personality type preference as opposed to training only in the Sensing mode, there would likely be an increase in career maturity score for each type.

Likewise, if decision strategies were taught according to personality type, there could be an increase in career maturity score for each type. As an example of this, the

current bias in career theory is toward encouraging clients to come to a single career decision, which is in line with the preference for decision strategy of the Judgment type. Perceptive types, when confronted with this decision strategy, may resist the counselor and progress in career counseling may waver. If counselors educate Perceptive clients toward decision strategies that include creating options, then this will be in line with Perceptive preferences for decision strategy and will facilitate progress in the career counseling process.

There is in career counseling a persistent incongruence between traditional doctrine and conclusions based on research. It seems to be a case of "myths die hard" in the area of career decision making. The logical, analytical paradigm is the standard, the traditional and the accepted method of decision making in North American culture. Although it is recognized that this "rational" method is not the only method, it is at this time the only accepted method. Who in this culture wants to be accused of making a nonrational decision?

The fundamental decision making paradigm from which career theorists built their ideas of career decision making was provided by science (Brown & Brooks, 1990). Science requires that the decision maker be separate from the decision. Objectivity as a goal of science emerged from the work of Galileo, Descartes, and Newton (Durant & Durant,

1961) and has held in check the parameters of knowledge for centuries. Thus, the rational method has a certain historical validity. It has appeal because it is simple, clear and is in line with Western philosophical traditions. It does have general decision making applications in situations where objectivity is relatively possible.

The question arises as to whether human beings can make a career decision objectively, and indeed, whether this is even a sensible or realistic goal. Is a career decision to be equated with such practical decisions as choosing ground cover A or B to prevent erosion in subtropical environments? The scientific paradigm has limited application to career decision making because the decider is intimately and personally involved with the decision and its outcome. There are objective aspects of career decision making, such as information provided by interest inventories. However, the facts are overshadowed by the subjective experiencing of the perceiver. The human decision maker does not dispassionately observe data. In addition, the moment facts emerge they are affected by the perceiving observer. All human perception is a subjective experience. Human beings select relevant "facts" both conscious and unconscious to which to attend (Kelley, 1962) and those facts are organized into self-made categories for the purpose of understanding (de Bono, 1992).

Although career theorists originally looked to the rational decision paradigm as a model for career decision making, this was only a model of convenience and tradition. Both research and thoughtful consideration reveal that career decision making, although it has rational components, is not in its application a purely rational process.

It is apparent that career counselors are in transition from the scientific model to a realistic model of career decision making. The trend is to broaden acceptable methods of information gathering and decision making, as well as expand decision strategies (Gelatt, 1989). Recent literature reflects this trend. Such noted authors as Brown and Brooks (1990), in their book entitled Career Counseling Techniques, include a chapter on lateral thinking. This is a nonlinear cognitive process intended to break stereotypes, preclude premature closure in decision making, provoke creativity, and generate alternatives (de Bono, 1970, 1992). Brown and Brooks (1990) head one section, "Using Nonrational Decision Making Strategies." They explain the use of lateral thinking as a method of expanding career decision making beyond the rational style, an attempt to move career decision making in a more inclusive and realistic direction.

The curious problem is that career counselors hold to the myth that career decisions "should" be made following the rational model, even though research shows there are other viable options and experience reveals that career

decisions contain subjective components. Brooks and Brown (1990) reflect their hesitation to break from tradition by labeling alternative paradigms in the negative and by printing a disclaimer after suggesting alternative techniques of thinking and deciding.

This research supports the move toward the acceptance of alternative methods of information gathering, decision making processes and decision strategies. It seems clear that the relationship between career maturity and psychological type is one of mutual facilitation. The challenge to the counselor is to encourage the development of individually effective ways of gathering information and decision making. In addition, counselors should encourage attitudes of planfulness which include a goal of making one career decision or a strategy for creating viable career options.

Implications for Counselor Training

Counselors should be trained in the use of the MBTI and the CDI as instruments of progressive mutual benefit in increasing our understanding of the process of career decision making. The MBTI can inform the counselor of the client's preferences, and, therefore, of the client's more mature methods for information gathering, decision making and decision strategy. This can be translated into an educational component of career counseling through the design and application of training programs which develop

type. This was the approach of Krumboltz (1979) with reference to decision making when he trained intuitive decision makers in intuitive processes and rational decision makers in rational processes with a resulting increase in career maturity.

The CDI can be used to identify the career maturity level, thereby targeting the appropriate training needs. For example, if an STJ student is identified as low in career maturity, that student could be instructed in a program designed to teach information gathering, decision making, and decision strategy targeted to the student's preferences according to type.

Limitations of the Study

The sample used in this study is from an undergraduate course which represents undergraduate students who are voluntarily interested in participating in a structured career/life planning course. Since the course was not mandatory, the subjects do represent individuals who have a voluntary interest in structured career development coursework. In that respect, however, they may not represent college students in general. Wilson (1983) found that MBTI type did not itself motivate individuals to seek career development activities. Thus, there is no reason to suspect that certain psychological types would be represented out of proportion to their occurrence in the general population.

The CDI manual (Super, Thompson, Lindeman, Jordaan, & Myers, 1981) provided evidence of internal consistency. The Career Planning and Career Exploration scales have average alphas of at least .75, which indicates they can be used for individual counseling. However, the scales of Decision Making, World of Work, and Knowledge of Preferred Occupation have lower alphas and caution is suggested in using these scales in individual counseling. The CDI questions are categorized by scales. The response options could limit the variety of responses given by STJ's or NFP's. A problem may arise, for example, when only STJ responses are provided to the questions so that NFP's are unable to respond differentially according to preference.

Suggestions for Further Research

In examining the limitations of this research, it is suggested that the sample cannot be generalized to the population of college students because of the voluntary nature of participation. Research should be conducted on a broader range of college students so that conclusions could be confirmed for college students in general. Future research should also include broader demographic information to explore whether there are response differences due to more highly differentiated factors. These factors might include race, majors, geographic location, and size of institution.

Investigators could explore larger numbers of more congruent samples to investigate type difference, for example, seeking a sample of all freshmen at the university. Future research also could seek to determine if there are intervening factors, such as self-confidence, especially with reference to exploratory behavior, or strength of type development. These factors may influence whether type correlates with career maturity. Research could explore MBTI function-dominance as a factor in career maturity. In addition, with a larger sample, research could investigate all sixteen MBTI types to determine if there is a relationship between any of the 16 MBTI types and the CDI scales. In following up on outcomes, it is suggested that research be conducted to investigate the effect on career maturity scores when type is used as a guide for designing educational programs focused on information gathering and decision strategy.

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