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## Some Developmental Components of the Career Decision Making Process Among College Students

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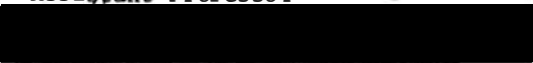
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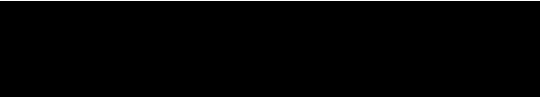
  
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Some Developmental Components  
Of the Career Decision Making  
Process Among College Students

A thesis submitted in partial fulfillment of  
the requirements for the degree of  
Master of Science at Virginia  
Commonwealth University

by

Glenn Thomas Gould

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Finally, I dedicate this thesis to my wife, Maureen. She has been my endless source of inspiration, encouragement and love.

## TABLE OF CONTENTS

	Page
List of Figures.....	iv
List of Tables.....	v
List of Appendices.....	vi
Abstract.....	vii
Introduction.....	1
Review of the Literature.....	1
Developmental issues of college students.....	1
Factors influencing career decisions.....	8
Social learning and behavioral influences on career decision making.....	14
Developmental influences on career decision making.....	19
Cognitive components of career decision making.....	28
Summary and Research Questions.....	34
Method.....	36
Participants.....	36
Instrumentation.....	36
Procedure.....	39
Data Analysis.....	39
Results.....	41
Discussion.....	48
Limitations of the study.....	51
Implications for counseling.....	52
Future research questions.....	53
Appendices.....	55
Reference Notes.....	79
References.....	80
Vita.....	88

## LIST OF FIGURES

Figure		Page
1	A Decision Making Model.....	12
2	A Hierarchial Model of Career Maturity.....	27

## LIST OF TABLES

Table		Page
1	Means and Standard Deviations for All Variables.....	41
2	Pearson Product Moment Correlations between Selected Variables and Participants "Level of Certainty".....	44
3	Comparison of Decided and Undecided Students on four variables.....	46

## LIST OF APPENDICES

Appendix		Page
A	Assessment of Career Decision Making (Form C).....	56
B	Career Maturity Inventory.....	63
C	Student Developmental Task Inventory.....	66
D	Student Characteristics .....	76
E	Informed Consent Form.....	78



## Abstract

Current research suggests that there is some relationship between developmental variables, levels of career maturity and career decisions. In this study, the relationships between certain developmental factors and the degree of certainty expressed by college students about their decision to major in a field of study were explored. The variables included the student's decision making stage, decision making styles, levels of autonomy and interpersonal relationships, and degree of career maturity. The relationships between students' status as decided or undecided about a choice of major and the variables were also investigated. The participants of this study were 104 men (n=47) and women (n=57) who were enrolled as degree seeking students at Virginia Commonwealth University during the 1981 academic year. It was found that the student's scores on developmental measures did interact with levels of certainty of the decision making outcomes. Significant positive relationships were found to exist between decision making stage, decision making style, level of autonomy, career maturity, and the expressed level of certainty of the decision. Also, it was found that students who had decided upon a major field of study scored significantly higher on the measure of career maturity than did the undecided students. It was suggested that these results be applied to the career/academic counseling setting. Counselors could better help students to plot a course towards effective decision making by considering informational and developmental factors as components of the career decision making process.

## REVIEW OF THE LITERATURE

### Introduction

During the past three decades, the relationship between psychological/social/cognitive developmental issues, and the tasks of career decision making has received increasing emphasis (Crites, 1961; Munley, 1977; Super, 1953; Tiedeman & O'Hara, 1963; Zaccaria, 1965). Empirical research studies investigating this relationship, however, are relatively few. Those which have been done suggest that several factors such as cognitive style (Harren, Note 1; Tiedeman, 1961), level of career maturity (Crites, 1961, 1967, 1973), and levels of psychosocial maturity, as measured by successful resolution of Erikson's (1950) psychosocial stages (Munley, 1975, 1977), have significant interactions with the career decision making process.

The primary question explored in the present study was "Do these important factors occur separately, independent of one another, or are they related as component variables, interacting with one another to influence the entire decision making process?" The purpose of this study was to increase the current level of empirically based knowledge and understanding of the factors involved in the career decision making process. Practically, this type of data may provide vocational counselors, academic advisors, and students with more complete information upon which to consider the making of a major career/academic decision. The following sections will include a review of: developmental issues of college students, career decision making variables, and a description of assessment instruments that were selected for this study.

### Developmental Issues of College Students

For many years, psychologists, college counselors, academic admin-

istrators, and other professionals have been aware of the impact of the normal developmental processes upon the lives of college students. These developmental stages and their accompanying tasks provided a theoretical base for psychotherapeutic strategies (Coons, 1971; Erikson, 1969), vocational counseling (Knefelkamp, 1978; Super, 1970), and curriculum planning (Chickering, 1979; Touchton, Wertheim, Cornfeld & Harrison, 1977) within the university setting.

The following section will present a review of the theories of developmental stages and tasks which have been proposed for the lives of college students.

Miller and Prince (1977) define the developmental stage as a period of time when an individual is establishing new behavior patterns which differ from those of previous periods. Movement from one stage to another is seen as a sequential growth process which entails a movement from relatively simple to progressively more complex structures. This process is cumulative in that the experiences and successes of previous stage resolution will aid in the person's use of effective coping strategies when dealing with current tasks.

Since 1959, the primary source for understanding the sequential development of the individual has been the writings of Erik H. Erikson (1950, 1968). While his presentation of the eight stages of man (1950) has its basis in psychoanalytic theory, Erikson's lifespan psychosocial theory provides a workable framework to understand the task of identity development of the college student.

Erikson's (1968) ego-identity model stresses the importance of the epigenetic principle. In general terms, he asserts that anything which grows has a "groundplan". From this groundplan, parts arise, having their own special time or prominence. The final stage of development

is marked by all of the parts having developed, and the organism functioning as an integrated whole. Erikson applies this principle to the understanding of the physical and emotional development of the individual from birth to death.

The lifespan is seen as consisting of eight developmental stages of growth. These stages are understood as times of struggle and "crisis" with the following issues:

1. Basic Trust vs. Mistrust
2. Autonomy vs. Shame and Doubt
3. Initiative vs. Guilt
4. Industry vs. Inferiority
5. Identity vs. Role Confusion
6. Intimacy vs. Isolation
7. Generativity vs. Stagnation
8. Ego Integrity vs. Despair

Movement through these stages occurs with influence from biological maturation processes, pressures from the family and parents, and from expectations and norms imposed by various social and academic institutions. Indeed, in each of the eight stages, physical growth, cognitive maturation, and social demands converge to create particular developmental tasks or crises.

During the stage of adolescence (Stage V - Identity vs. Role Confusion), recent changes in body shape and drives, a more complex and abstract set of cognitive abilities, and an increased awareness of societal norms, set the stage for the college student to struggle with questions such as, "Who am I?", "What will I be?". Erikson described this situation as the crisis of identity (1968).

During this period of "uprootedness", the earlier issues of trust, autonomy, initiative, and industry may need to be re-grappled with. It appears that individuals who successfully resolve these issues in past development may use the resolutions as bases from which to anchor a solid

foundation for the building of their sense of purpose and identity (McCall, 1973).

While Erikson does not refer to the objectives of each stage as "tasks", it can be inferred that there are at least five goals which must be dealt with prior to the person's establishing a sense of identity and purpose. According to Miller and Prince (1977), these objectives include the learning of an appropriate sex role, accepting one's own body, achieving emotional autonomy from parents, selecting and preparing for a vocation, and developing a set of values by which to live.

From a mental health, treatment perspective, Frederick Coons (1971) emphasizes the importance of recognizing the issues of the college student's resolution of the parent-child relationship and the eventual choosing of a course of study and life's work. Coons contends that the five basic issues which must be confronted by the student are:

1. Resolution of the parent-child relationship.
2. Solidifying a sexual identity.
3. Formation of a personal value system.
4. Development of the capacity for true intimacy.
5. Choosing a life's work.

An inability to successfully confront and resolve these life issues may result in later difficulties which might necessitate psychotherapeutic intervention later in life.

Arthur Chickering (1969) has extended Erikson's psychosocial theory to include an emphasis upon the young adult stage. His theory of college student development uses Erikson's identity stage as an orientation point, and goes on to propose that the traditional college student occupies a psychosocial stage which is distinct from adolescence and adulthood. This stage of development is the result of an increase in inner emotional and cognitive capabilities, along with demands from the particular college environment. Chickering's proposal of a developmental scheme is intended

to provide an outline for university communities, so that they may foster appropriate development in the young adult stage (Chickering, 1969). Further, students are viewed as developmentally diverse, due to the individual differences of both the student and the particular academic institution.

Chickering has proposed seven "vectors" of development in the task of identity resolution. A description of the seven vectors follow.

Within Vector I - Developing Competence, the student is seen as developing a sense of personal effectiveness in Intellectual, Physical, and Social competence. If students are able to successfully develop these three areas, an integration process occurs which promotes a sense of basic personal competence to emerge.

At the time of adolescence, body maturation brings forth a flood of emotions and impulses. This is reflected in Vector II, Managing of Emotions. Both sexual and aggressive feelings are seen as prominent forces at this stage. Chickering describes the necessity that the student recognize these feelings, "Until lust and hate are admitted as legitimate emotions, as legitimate as love and admiration, their motive power is not likely to be harnessed to productive ends" (Chickering, 1969; p. 11). The limited ability to manage these emotions may be reflected in the relatively common problems of resident hall damage, roommate conflict, and exploitative sexual relationships (Widick, Parker & Knefelkamp, 1978). The identification and integration of these feelings as existing within the self, finally leads to the development of more flexible controls and new modes of emotional expression.

The premise underlying this third vector, Developing Autonomy is that the student must develop a sense of autonomy in three areas: a) emotional autonomy, b) instrumental autonomy, and c) the recognition of

one's interdependence. Basically, this developmental sequence moves towards the student's achieving independence from parents and developing a sense of reliance upon self and peers for support and guidance. Instrumental autonomy refers to the student's developing ability to carry on activities, and to cope with everyday problems without seeking help. Finally, the person recognizes the value of autonomous functioning, yet also develops the knowledge that a strategy of interdependence is usually most productive.

"Like the piano wire that hums, or like the glass that shatters, we all have our critical frequencies in a variety of areas. Vector IV, The Establishing of Identity - includes the process of discovering with what kinds of experience, at what levels of intensity and frequency, we resonate in satisfying, in safe, or in self destructive fashion" (Chickering, 1979; p. 13). The task of this vector is to integrate one's experiences and to negotiate a realistic, stable self-concept. This change is seen as being a major attitudinal shift.

The major tasks in this fifth vector, Freeing Interpersonal Relationships include the student's increased tolerance and acceptance of differences between individuals, and a heightened capacity for involvement in mature and intimate relationships. These relationships are characterized by the person's ability to inject openness, autonomy and trust. The student's levels of development in the areas of autonomy and identity are crucial determinants in this vector.

In Chickering's sixth vector, Developing Purpose, the student becomes better developed in the area of identity formation. An assessment and clarification of interests, educational and career options, and a set of life style preferences emerge. Chickering no longer views the dilemma as "Who am I?" but rather, "Who am I going to be?"; not just "Where am I?",

but "Where am I going?" (1969; p. 16) Development of purpose requires a development of plans, priorities, and values. With an integration of these, a sense of direction and meaning are present.

This final vector, Developing Integrity is most closely related to the student's establishment of identity and a sense of purpose. This is the time when old values are re-examined, and a set of personal values is re-established and clarified. Within this re-discovery process, the person also seeks to achieve congruence between their personal beliefs and their behavior.

It seems clear that there exists some generalized consensus, among developmental theorists, as to the overall existence and importance of developmental stages and tasks among college students. Based upon an integration of these theories, (Prince, Note 2), and with particular influence from Chickering's (1969) vector theory, Prince, Miller and Winston (1974, 1979) have developed a paper and pencil inventory to assess the levels of student development in three major areas. The Student Developmental Task Inventory (1974, 1979) is a self-report measure of the student's degree of maturity in the tasks of developing autonomy, developing purpose, and developing mature interpersonal relationships.

According to the Prince, Miller and Winston model, the student must first develop both emotional and instrumental autonomy from the parent-child relationship. Next, an awareness of the importance of reciprocal respect and interdependence emerges.

Under the second task, the student is seen as struggling with the issues of developing tolerance for other's appearance, values, and lifestyles. Mature relationships with peers also characterize the person's interpersonal experience. As the interpersonal style matures, the student



begins to develop intimate relationships with others of the opposite sex.

To complete the third task, the individual must develop mature academic plans and competencies. Next, the emphasis is on examining the world of work, and to subsequently develop a sense of career planning. Finally, a plan for the future which balances vocational, avocational, and marriage and family concerns is formulated as one's future lifestyle.

In addition to the various theoretical perspectives on college student development reviewed in this section, a number of other theorists have proposed several other developmental stages of the growth process in such areas as intellectual abilities (Piaget, 1956), moral development (Kohlberg, 1963) and cognitive development (Perry, 1970).

Finally, the stage and task concept has been applied to the process of vocational development and career decision making (Harren, Kass, Moreland, & Tinsley, 1977; Super, 1963; Tiedeman & O'Hara, 1963).

An elaboration of the career decision making process, from a number of theoretical perspectives, will be discussed in the following section.

### Factors Influencing Career Decisions

"You cannot solve your problems unless you more clearly define your goal and the consequences of your decision" (Girshick, 1954, p. 463).

The study of the career decision making process is historically rooted in the early work on decision making strategies of economics and mathematics (Gelatt, 1962; Gershick, 1954). These early models concentrated on the task of the decision maker to define a desired objective, collect and analyze relevant data, define alternatives, and evaluate the likely consequences of the decision. In many of the early decision making paradigms, the supply of available relevant information, and the probability of the desired outcome occurring were seen as the critical factors.

During the 1950's and early 1960's, several psychologists began to apply traditional decision making theory to counseling and career decision making (Gelatt, 1962; Gershick, 1954; Ginzberg, Ginzburg, Axelrad, & Herma, 1951; Hilton, 1962; Katz, 1963).

Conclusions drawn by Ginzberg et al. (1951) from their research project suggested that occupational choices are the result of a sequential and irreversible process, which consists of several consecutive stages. This approach to career decision making implied a single goal, single strategy model.

The initial stage of this process was viewed as a fantasy period, which included a childlike exclusion of any realistic limitations or barriers. This stage was described as being highly explorative and irrational.

Next, the decision maker entered a tentative stage, where the range of alternatives was still considered on a subjective basis, and the choices were experienced as tentative.

The final three stages were characterized as being increasingly rational, where the person's occupational desires and available opportunities and resources reached a realistic compromise. This compromise was achieved by progressing through the sequential stages of exploration (information gathering), crystallization of general vocational areas, and then a specification period where the person reached a final commitment to specialize in a chosen area.

Tiedeman's (1952) criticism of this early model challenged the supposition that the career decision making process is irreversible, and criticized the very limited number and select nature of Ginzberg's subject population. Also, the idea that variations in the timing and sequence of these stages were perceived as "deviations" was challenged by Tiedeman.

Hilton (1962) described the circumstances leading up to the decision making experience. The impetus to begin the decision making is initiated by input from the environment. This input may often have the power to influence existing life plans, and may come in the form of an unexpected opportunity, additional vocational information, or a change in physical or emotional status. With this information, the decision maker subjectively tests to determine if the new input has increased the experienced level of cognitive dissonance. If dissonance exists at a level which causes a disequilibrium or an inconsistency among life plans, thus causing discomfort, the individual must re-examine the desirability of continuing with existing plans. When the plans can be revised to accommodate all desired alternatives, then a congruous balance is again achieved, and no further decision making actions are necessary. If, however, the various alternatives cannot be mutually accommodated, the person responds by initiating a search process for relevant information. Based upon this information, a new plan is formulated and tested. If the intensity of dissonance is reduced to a point below the discomfort level, then the decision is finalized. In the event that the dissonance is still too high, the process is repeated until a satisfactory level of cognitive equilibrium is achieved.

Conditions and factors which are seen as critical to the process include:

1. An awareness, by the individual, of the decision situation.
2. An awareness of the alternative actions (choices).
3. An evaluation of the possible outcomes (imagined or real). This would also include:
  - a) subjective probability that the desired outcomes will occur.

- b) Evaluation of the perceived value of the outcome.
4. Finally, the level of commitment to the selected choice is determined (Hilton, 1962).

In 1962, Gelatt further refined the paradigm, and presented a conceptual framework to understand the career decision making process.

Gelatt's model required the decision maker to:

1. Define, clearly, the goal or objectives.
2. To collect and analyze relevant data (information).
3. To study the possibility of alternatives, including the expected probability and desirability of the outcome.
4. To make a decision consistent with the above information.

Gelatt's concept of the decision making process allows for the decision maker to make either a terminal decision, or an investigatory decision. When a terminal decision is made, the individual's decision making strategy has resulted in the attainment of an acceptable outcome. In the case of the investigatory decision, the individual makes a decision to continue on with the search process (collecting data, evaluating possible alternatives, etc.), until a terminal decision is reached. (See Figure 1)

In this model, decisions may lead to the collection of more data, or to outcomes which alter the situation, and require the application of new strategies. Here, decisions are viewed as final, only in that the immediate goal is reached. Further, the achievement of this goal is likely to initiate the development of further goals and more decision making activities.

A "good" decision is defined as one which is achieved through the above process, which makes use of most relevant information, and one for which the decision maker is willing to assume responsibility for the outcome.

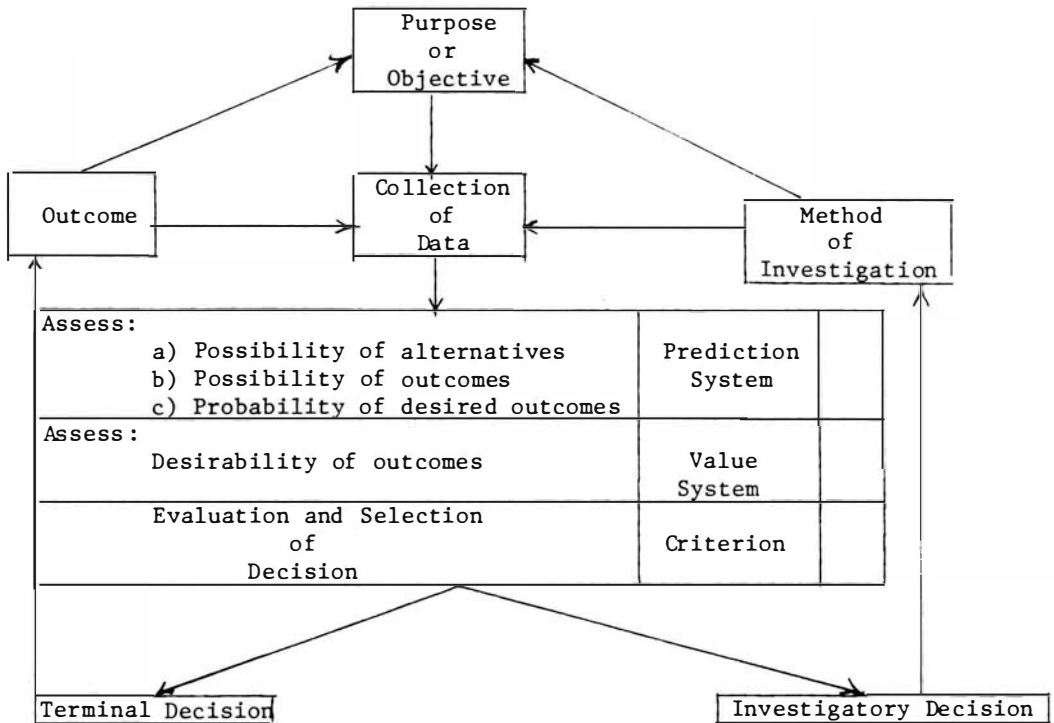


Figure 1. A Decision Making Model. Gelatt, H. B. Decision making: A Conceptual frame of reference for counseling. *Journal of Counseling Psychology*, 1962, 9, 242.

Katz (1966) proposed that the decision making process involves a relationship between the individual's values, aptitudes and strengths, and the perceived probability of a desirable return.

This is similar to Gelatt's (1962) description of the process variables involved, yet Katz introduced the factor of individual differences in the form of personal values, aptitudes and strengths (Katz, 1966).

Again, the aim of further refining these paradigms and conceptual models is to present the career decision making process as a more understandable, rational, and therefore predictable phenomenon. The logical extension of this approach is the computerization of the career decision making counseling process. The development and use of information giving, problem solving, and interactive computer systems, in the fields of educational and vocational counseling, has been extensively studied (Dunlop, 1967; Ellis & Tiedeman, Note 3; Harris, 1968, 1974; Katz, 1972; Lowry, 1966; Super, 1970). The majority of the findings support the use of such systems in educational (Lowry, 1966; Price, Note 2), vocational (Katz, 1972), and personal dilemma (Wagman, 1980) counseling situations. Super (1970) discussed the beneficial aspects of differential and joint use of computer and counselor assistance.

In a recent review of the career decision making process, from the point of view of information processing and decision theory, Pitz and Harren (1980) discussed the supposition that the more knowledge and relevant information one has, the better one can use this information and make a rational and satisfying decision (Gelatt, 1962). Pitz and Harren contend that one of the important variables is not how much information is available, but rather, what part of that information is used. That is, due to the decision maker's selectivity of information, the decision may

be made on a small subset of that data. Svenson (1979) showed that subjects, with many available choices, eliminated options based upon one selected information, before all relevant information could be considered. This issue of selectivity is addressed by Pitz and Harren, "For optimal decision making to occur, it is not sufficient to provide a person with a clear understanding of the problem and all relevant information,...people resort to simplifying heuristics for coping with information, which results in...inconsistencies in their behavior." (p. 341)

Katz et al. (1978) contended that people are likely to understand the significance of the information based upon a personal schemata or with relevance to "personal domain."

The following section will attempt to explore some of those variables which may influence to which subset of available information a given person is likely to attend. Three general types of influencing factors will be discussed. These are: 1) Social Learning/behavioral influences, 2) Developmental/affective influences, and 3) Cognitive structures which influence the career decision making process.

#### Social Learning and Behavioral Influences on Career Decision Making

During the early to mid 1970's, John Krumboltz and his associates began to piece together existing theory and research from the areas of social psychology, personality theory, and economics to synthesize a social learning theory of career decision making. This approach is an extension of the earlier writings of Ann Roe (1957) on the influence of early learning experiences in the family, of Krumboltz and Thoreson (1964) on the positive effects of a behavioral approach to counseling, and of Woody (1968) who points to the importance of rewards, social modeling, and verbal reinforcement in vocational counseling.

The social learning approach to career decision making attempts to explain how preferences and skills are acquired, and how occupational choices are made. The theory emphasizes the interactive effects of both genetic and experiential components on the individual's vocational choice behavior.

In the major writings (Krumboltz, 1976; Krumboltz, Mitchell & Jones, 1978) factors are outlined which are proposed to have significant influence on the career decision making process. The first of these factors is the genetic endowment of the individual. This includes age, sex, physical appearance, plus composite genetic features such as intelligence, abilities, muscle coordination, etc. Next, the environmental conditions and events, including the number and nature of opportunities available, family training experiences, projected consequences, and neighborhood/community values influence the decision maker. The third factor described by Krumboltz is that of individual learning experiences. This includes instrumental learning which occurs as a result of a chain of antecedents leading to a behavioral response, which in turn presents either a positive or negative consequence. The second type of learning experience is associative learning. Associative learning results from the pairing of two or more learning experiences, or through the situation of observational or vicarious learning. The fourth category of influencing factors includes the concept of the individual's task approach skills. These skills include the person's unique qualities, skills and dispositions which are brought to a situation, and when applied, influence the outcome of the task. These four categories of influences have effects on three types of consequences. The consequences are Self-observation Generalizations, Task Approach Skills, and Overt Actions.



Self-observation generalizations occur as individuals compare their performance to the performance of others. From this comparison, a generalized self-statement is formulated. This self-statement generally reflects the person's perception of self-worth. Task Approach Skills refer to such decision making skills as values clarification, goal setting, and information seeking. Based upon the qualitative nature of the self-statements and the effectiveness of the task approach skills, an overt action results. This action may be an entry behavior such as enrolling in a class or the beginning of a new job.

The basic assumptions postulated by this model include the importance of such variables as genetic pre-dispositions, the amount and type of information one is exposed to, the effectiveness of significant role models, and the reinforcement properties associated with certain behaviors.

In addition, social learning theory emphasizes the importance of career decisions as a life-long process, not as a one time choice. The learning experience associated with each decision will have an effect on each subsequent decision.

This approach to career decision making places importance on such variables as the age of the decision maker, specific patterns of family training, parental modeling of behaviors and values, and exposure to various stimuli, actions and consequences.

Pagett (1978) investigated the factors which influence career decision making in a large sample of college students. He verified the importance of past experiences, advice from significant others, and the role of the family.

The relationship between the age of the decision maker, and the level of career decisiveness was investigated by Neice and Bradley (1979).

In a sample of high school and college students, there existed a positive correlation between the age of students and their perceived level of career decidedness. There were no significant relationships found between sex and educational groups and the level of decidedness. This appears to offer support to the hypothesis that the more learning experiences, and therefore the more information one has, the more certainty one will feel towards decisions made. This data argues against the Pitz and Harren (1980) hypothesis previously described.

The family system and its effects on the decision making process were discussed by Roe (1957) and Luckey (1974). Both authors stressed the hypothesized influence the family system has upon the development of values, lifestyles, and expectations of the child. These, in turn, affect later decision making and vocational preferences. Early writings of Crites (1962, 1969) stress the importance of early parental identification and vocational preferences. This was proposed as being particularly true among boys and their fathers. Later empirical studies have lent support to the notion that "Types produce Types" among males (Dewinne, Overton & Schneider, 1978; Jackson & Meara, 1977). In several studies, the influence of fathers on daughters, and mothers on daughters was supported (Grandy & Stahmann, 1974; Ridgeway, 1978). The influence of mothers on their sons has not yet been substantiated (Grandy & Stahmann, 1974).

In 1959, Schachter concluded that there are certain personality correlates associated with birthorder. He proposed that firstborns, when faced with stress, become more fearful and display a high need for affiliation with others. McDonald (1971) applied these personality correlates to likely occupational preferences. The high needs for affiliation and dependency were proposed to lead firstborns to prefer

people oriented jobs. Two studies, (Oberlander, Frauenfelder, & Heath, 1970; Weller, Shlomi, & Zimont, 1976) provided data which failed to support McDonald's theory.

In addition to occupational preferences, specific work values may be acquired via the process of identification and role modeling. This was supported by the findings of Goodale and Hall (1976) which showed that non-directive, supportive interest in school related activities influenced students to value college attendance. Also, occupational levels and interests of parents affected the educational planning of students. In a study involving high school students and their parents (Shappell, Hall, & TARRIER, 1971), the work values of the students were found to be associated with the background and situational characteristics of the parents. In an organizational setting, a study of subordinates and supervisors showed a high correlational relationship between the work values of some groups of workers and highly successful and considerate supervisors (Weiss, 1978).

Studies which have investigated the role of rewards upon vocational counseling and career decision making suggest that positive consequences associated with certain behaviors, will increase the likelihood of the repetition of that behavior (Woody, 1968). Rewards can be effective in the form of social recognition or verbal reinforcement. Krumboltz and Thoresen's (1964) study concluded that an increase in verbal reinforcements could be associated with an increase in vocationally oriented information seeking behavior by highly motivated students.

Finally, the importance of perceived career salience and current economic conditions has been studied. Greenhaus and Simon (1977) found that lower levels of career salience are associated with low levels of intrinsic work values and an increase in the rate of vocational in-

decision. Rosenberg (1977) found that college students who have high levels of information regarding higher than average vocational prospects (i.e. higher pay, greater availability of jobs) tended to express more certainty in their career decisions.

In conclusion, there appears to be a significant amount of empirical data which supports the theoretical bases of social learning theory as it applies to career decision making. Due to the testability of these hypotheses, continued research studies in this area are likely to reveal additional information.

#### Developmental Influences on Career Decision Making

During the past three decades, there has appeared in the literature a significant emphasis on a developmental framework to understand career decision making and vocational behavior (Crites, 1961; Jordaan, 1977; Super, 1958; Super, Crites, et al., 1957; Tiedeman & O'Hara, 1963; Zaccaria, 1965).

The early theoretical work of Buehler (1933), outlining five developmental stages, Erikson's (1950) eight stages of man, and Havighurst's developmental scheme (1953) provided a basis for later applications of the developmental perspective on vocational behavior. Super's early (1942) work on the dynamics of vocational development adapted Buehler's life stages scheme to the analysis of career development.

Later, Beilin (1955) attempted to apply general developmental principles to the vocational area by arguing that vocational development is just one aspect of the individual's total development, and is subject to the same principles as are all other developmental phenomena. Among these principles, Beilin hypothesized that development is a central process which is irreversible, and can be differentiated into sequential

patterns and stages which determine attention to different tasks and issues. The result of the developmental progression is an increase in the organism's level of maturity. The rate of development is viewed as occurring at a rapid pace at the outset, but slowing down as the organism matures. The direction of development is from dependent to independent, and from egocentric to social.

In 1963, Tiedeman and O'Hara proposed a similar notion that vocational development takes place within the broader framework of psychosocial and cognitive development.

Zaccaria, (1965) pointed to the similarities between the developmental tasks outlined by Havighurst (1953) and Erikson (1950), with the vocational development tasks outlined by Super (1957). Based upon this theoretical integration of the psychosocial and vocational schemas, he proposed that counselors must set specific goals, relative to the current developmental task of the client.

Hershenson (1968), Levinson (1976), and Jordaan (1974) further elaborated upon the vocational life stage concept.

During the early 1960's, Gelatt (1962) and Hilton (1962) focused attention on specific decision making paradigms, but did not attempt to show how their models fit into a sequential career decision making model.

Super, (1953) in contrast, called attention to the need for changing the conceptualization of vocational choice behavior from that of a single choice process, to an understanding of this process as an activity which is continual and sequential.

Recently, Super (1980) proposed the "Rainbow Model" which appears to have been constructed upon the developmental model, self-concept theory, and traditional decision making paradigms. Super's proposal contends that when an individual reaches certain points of each "life-role",

there occurs decision making activity. Decision points tend to occur just before or after the time one gives up an old life role to assume a new one (i.e. from husband to father, from adolescent to adult). These decision points may also occur following a major change in an existing role. Therefore, the stage of life a person is experiencing, the self concept a person accepts, or life situational factors can significantly influence both the process and the outcome of decision making behavior. This emphasizes the importance of the interactional nature of the self-concept, the assumed role, and the environment on vocational decision making behavior.

If the principles of career decision making do interact with, and follow the basic schema of other developmental processes, then it can be implied that as the individual grows older, and collects more relevant experiences, then the level of vocational maturity should continue to grow.

The concept of vocational maturity was first introduced by Super in 1955. At that time, the vocational maturity index was perceived as the ratio between an individual's vocational behaviors and chronological age. According to Super (1955), the level of maturity of vocational behaviors could be assessed in two ways. The first way is to compare the vocational behaviors and attitudes to those of others who are of the same chronological age. The other method is to make the comparison between the behaviors and attitudes to those of others who are in the same developmental stage.

To define the quality of vocational behaviors, Super (1957) proposed five dimensions along which behaviors could be assessed. These are:

1. Orientation to vocational choice.
2. The level of information and planning about the preferred occupation.
3. The consistency of vocational preferences.
4. The crystallization of traits.
5. The wisdom of the vocational preference.

Since the level of effectiveness of these behaviors were believed to be associated with the level of vocational maturity, Crites (1974) implied that across the life span, age should be significantly correlated with vocational maturity. The issue of age-stage correlation has been studied for some time, using both longitudinal and cross-sectional designs with varying results.

The 1957 career pattern study by Super et. al. was one of the first to explore longitudinally, the sequence of vocational life stages. As outgrowths of this project, several other major monographs have appeared. They include the works of Jordaan and Heyde (1979), Super, Kowalski and Getkin (1967); and Super and Overstreet's (1960) study of the vocational maturity of ninth grade boys.

Super and Overstreet's (1960) postulates for development include:

1. Vocational behavior develops over time, through growth and learning.
2. Vocational behavior moves from less to more complex.
3. As a person is able to deal with greater levels of complexity, the person is ready to progress to the next stage.
4. Vocational development may be measured with reference to the maturity of vocational behaviors.
5. The level of vocational maturity is a predictor of the level of vocational adjustment.
6. Vocational behavior is the result of a variety of determinants such as intelligence and socio-economic status.

The concept of sequential life stages and their relationship to vocational behaviors was expressed as a major tenet in this theory of vocational development (Super & Overstreet, 1960).

Tolbert (1980) highlighted the results of several studies directly related to the Career Pattern Study (Super et. al., 1957). These high-

lights included:

The vocational maturity of ninth grade boys is characterized by:

1. An awareness of the need to make vocational and educational choices.
2. An acceptance of the responsibility for making plans and decisions.
3. Some planning and participation in information getting activities.
4. A lack of readiness to decide on a specific direction or occupation.
5. Lack of knowledge about work and training opportunities, failure to utilize resources to obtain information, and little self understanding.

During the period between the 9th and 12th grades, modest increases in career development reveal:

1. Fewer occupations being considered.
2. More adult interests.
3. More confidence about interests.
4. More awareness of important characteristics of occupations of interest, and more information about them.
5. More specific plans for obtaining occupational preparation.
6. Greater acceptance of personal responsibilities for getting a job or obtaining needed preparation for work.
7. About the same level of realism in occupational preference in terms of ability, interests and socio-economic level".  
(Tolbert, 1980 pp. 44-45)

Jordaan (1977) challenged the measurement of vocational maturity as based upon these behaviors. The level of progression was not seen as substantial, and some of the students not only did not progress, but regressed in the level of attitudes and behaviors displayed. Tilden (1978) tested a sample of college students who failed to show a systematic increase in vocational maturity between grade levels.

A number of recent studies have attempted to isolate those factors which appear to influence progression along the continuum of career maturity and vocational success. Jordaan and Heyde (1979) contend that those students who display consistent positive development are those who are more intelligent, higher in socio-economic status, have higher scholastic grades, and display a more positive self concept than do their



peers. Other studies have confirmed a positive relationship between school grades, extra-curricular activities and success in careers at age 25 (Super, Kowalski, & Getkin, 1967) and at age 36 (Jordaan & Super, 1974). Crites and Semler (1967) showed that early personal adjustment, as rated by teachers and counselors, is related to later adjustment, educational achievement and vocational maturity.

Dilley (1965), in a study of 174 high school seniors, showed that effective decision making ability is associated with higher levels of intelligence, achievement, and extra-curricular activities.

In a series of experiments done to test the sequential nature of Hershenson's (1968) life stage vocational development system, it was found that while these stages may occur in a sequential order (Hershenson & Langbauer; 1973; Hershenson & Lavery, 1978), they do not necessarily appear to be age linked or sequential (Rush, Peacock, & Milkovich, 1980).

Another set of variables which may influence the development of vocational behavior includes the individual's stage of ego identity and psychosocial development. Galinsky and Fast (1966) hypothesized that forming an identity is part of the normal developmental progression. This task normally occurs during the late adolescent stage, the same time that a person is making initial realistic vocational commitments. It is possible that problems associated with the establishment of a personal identity may manifest as problems with vocational indecisiveness or immaturity. Davis (1965), in her study of 400 adult females, found that ego identity was positively related to the level of vocational commitment and level of confidence in their career decisions. Munley (1975) explored the relationship between levels of psychosocial development (as measured by the Dignan Ego Identity Scale) and vocational choice behavior and development of career maturity. The results of this study also showed a positive relationship between these variables.

Following early involvement with Super, Hummel, Overstreet and Warnath (1957), John Crites published a paper (1961) which provided both an analysis and critique of Super's (1957) concepts, measurements and definitions of career maturity. While Crites' work was strongly influenced by Super's perspective, he began to work on developing a more empirical tool for the assessment of vocational maturity.

Crites' (1961) definition of career maturity referred to the level of the individual's vocational behavior as indicated by the similarity between his/her behavior, and that of individuals in the same vocational life stage. The implication of this concept is that as one gets older, one is able to discriminate more effectively and realistically among available courses of action. Thus, it can be assumed that career maturity, according to Crites, increases incrementally across age and grade (Crites, 1974).

Prior to his 1965 monograph, Crites began work on an instrument which proposed to measure career maturity along the two dimensions of vocational choice attitudes and competencies. To accomplish this, he included items theoretically related to career maturity, selected items that differentiated among age and grade levels in a systematic way, and evaluated the psychometric characteristics of these items. The items comprising this instrument, the Vocational Development Inventory (1964), were drawn from counseling case records, personal experience, biographies, and occupational information pamphlets.

Crites used the V.D.I. to measure the maturity of vocational attitudes among 2,822 children, grades 5 through 12 (Crites, 1965). He found that vocational maturity correlated with both age and grade, with a stronger relationship to the latter. Based upon this data, he proposed that movement across the stages of orientation, information gathering, and

crystallization of vocational choice is primarily associated with the transition points within the educational system (e.g. grammar school to Jr. High, Jr. High to Sr. High schools).

During the next five years, Crites continued to refine and utilize the Vocational Development Inventory, and to further investigate those variables which appeared to be linked with vocational maturity. In a seven year longitudinal study of 483 students (Crites & Semler, 1967), it was found that early levels of personal adjustment related to later levels of adjustment. Also, both early and late adjustment levels correlated with educational achievement and vocational maturity. Thus, personal adjustment (as rated by teachers and counselors) appeared to be a "suprafactor" in educational achievement and the development of vocational maturity.

Following further refinement of the V.D.I., and continued statistical analysis (Crites, 1971), the instrument was renamed the Career Maturity Inventory (Crites, 1973).

Crites' hierarchical model of career maturity in adolescence (1965) was based upon Vernon's (1950) hierarchical model of intelligence. In this paradigm, career maturity is determined by a general factor (g), group factors, and specific individual variables. (See Figure 2)

The career choice attitude scale of the C.M.I. taps the areas of involvement in the career decision making process, independence and compromise in C.D.M., the individuals orientation to C.D.M., and preference for specific occupational areas. Crites suggested use of the attitude scale of the C.M.I. includes the studying of an individual's level of career development, for screening for career immaturity, assessment of guidance needs, evaluation of career education, and for testing in career counseling.

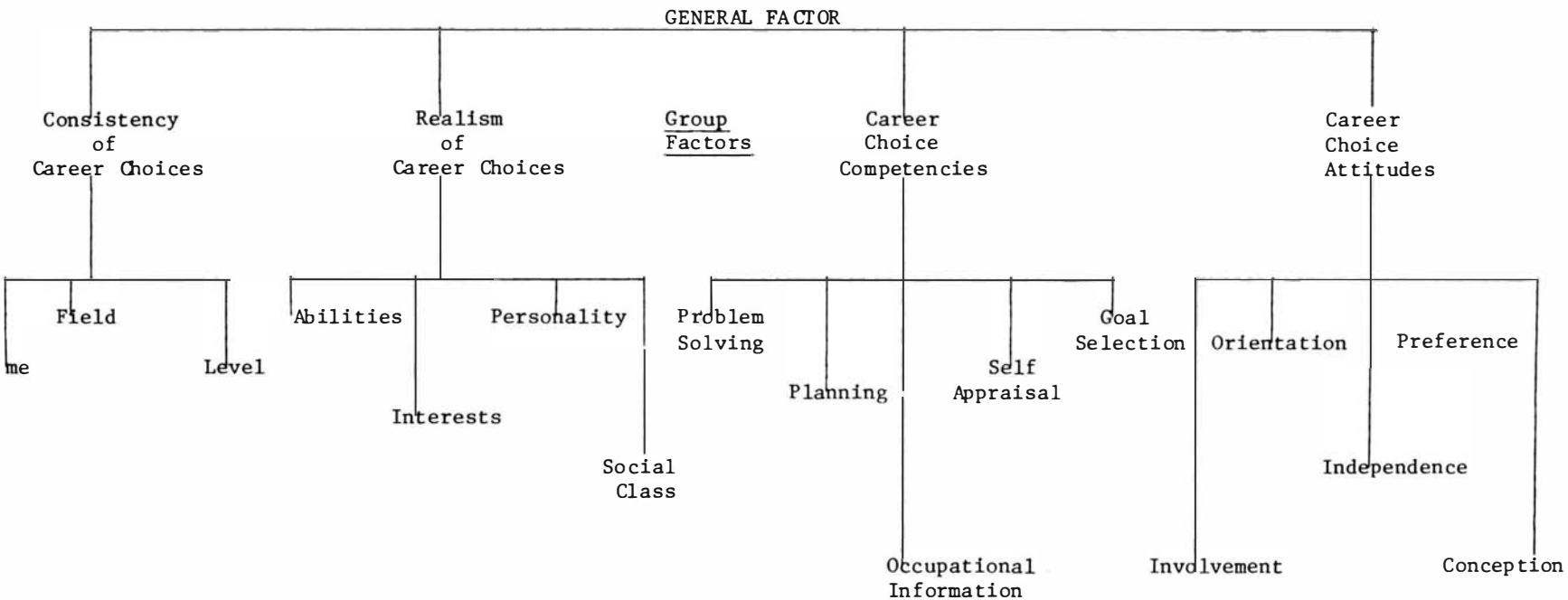


Figure 2. A hierarchical model of career maturity. Crites, J. O. Measurement of vocational maturity in adolescence: Attitude Test of the Vocational Development Inventory. Psychological Monographs, 1965, p.31.

The competence test measures the following career choice competencies: 1) Self-appraisal, 2) Knowing about jobs (occup. information), 3) choosing a job (goal selection), 4) Looking ahead (planning), and 5) Problem solving. Crites (1973) has suggested that the competency test should be used as a complement to the attitude scale to study career maturity variables.

During the past eight years, the development of the C.M.I. has prompted at least 187 research studies (Kivligan, Note 4) including studies that have further investigated the measurement procedures and statistical properties of the instrument.

#### Cognitive Components of Career Decision Making

A third set of factors which appear to influence the career decision making process are the cognitive components. The works of David Tiedeman, R. O'Hara, Anna Miller-Tiedeman and Vincent Harren provide a firm foundation for both the understanding and measurement of a variety of cognitive functions.

Tiedeman's earliest writing (1952) provided a review of the Ginzburg, Ginsberg, Axelrad, and Herman (1951) approach to a general theory of occupational choice. This general theory was developmental in nature, proposing that an individual bases a final, irreversible decision on information obtained through several stages, which move from fantasy to realism. Within the realistic stage, Ginsburg et al. proposed three sub-stages of exploration, crystallization and specification.

While Tiedeman was somewhat critical in his review of Ginzburg's "irreversible" nature of the model, and the apparent weak methodology, it clearly influenced his thinking. In 1961, Tiedeman published a model

of decision making and vocational development that integrated some of the earlier developmental models with Ginzburg's cognitive paradigm.

Tiedeman's approach (Tiedeman, 1961; Tiedeman & O'Hara, 1963) viewed the career decision maker as having both personal responsibility and the capability to make effective decisions. The decision maker was described as being confronted with a series of discontinuities of experience as a result of changing physical and social environments. These changes produce a situation of discomfort and therefore a problem to be solved. Gradually, as the decision maker is able to reach satisfactory resolution of the problem, by way of making effective decisions and implementing successful plans, the person experiences an increasing degree of control over his or her behavior and environment. These successful resolutions lead to a greater sense of personal confidence, and therefore to even more purposeful, successful behaviors.

When faced with a career decision problem, the task of resolution typically progresses through a seven stage cognitive process. This process includes the elements of first differentiating among available choices and the integrating oneself with the group. The first four stages are viewed as anticipatory or planning, while the final three involve implementation and action.

The Tiedeman-O'Hara model defines the following stages.

Within the exploration stage, the individual engages in unrestricted exploratory behavior. The person is likely to experience vague concerns regarding the discontinuity effect, but typically displays little or no progress toward active resolution. At this time, there are very few exclusions of alternatives and the person is likely to try out a variety of roles within the confines of the imagination.

At the crystallization stage, the person begins to consider the factors of personal values, goals, abilities, and motivators, and prepares to move in a direction which is congruent with these personal factors. During the crystallization stage, the person actively engages in narrowing down a range of possibilities, and prepares to make a substantial investment along the line which seems most desirable.

During the choice stage, there is a definite commitment with a degree of certainty. At this time, a decision is made, and this is often accompanied by feelings of satisfaction and relief for having made a choice. Focus on the consequences of the decision and further planning are not yet in evidence.

At the clarification stage, a process of closure, resulting from the further analysis of choice and the reviewing and resolving of any doubts or uncertainties, occurs. As a result of this closure process, plans are finalized for carrying out the commitment. Following the clarification stage, the decision maker is ready to take action by implementing choice behaviors. This process unfolds through the three remaining stages.

During induction, the initial implementation of the decision occurs. The person enters the situation at an entry level position (e.g. the job, the school, etc.) and he or she seeks initial approval and recognition from the group. The primary mode of interacting with established group members is passive and accommodating. At this time, the person begins to assess the group's values and purpose, and a gradual identification process, of the person to the group, takes place. This stage ends with the group accepting the individual.

At the stage of reformation, the individual has been accepted by the group, and the primary mode of interaction by the individual is assertive

rather than passive. Here, the person is highly involved in group process and works hard at bringing the values, goals and purposes of the group into greater conformity with those of the self. The result is a gradual modification and integration of the values and needs of both the individual and the group.

Finally, at integration, a balance between the demands of the system and the needs of the person is achieved. Both parties strive to maintain a dynamic equilibrium through collaborative activity. The individual is now likely to feel satisfied and experience a perception of self-worth.

This process of career decision making is most effective when it is carried through rationally and thoroughly. It may be in operation in a number of different stages, depending upon the variety of problems and decisions simultaneously facing the individual. A decision in one area is viewed as affecting the stage progress of all other areas. Each decision leads to a new sequence of differentiating and integration within the person's experience (Tolbert, 1980). Tiedeman and O'Hara (1963) described this seven stage process as ordinarily being progressive, however, the possibility of regression or re-cycling, depending upon consequences or events, is recognized.

Vincent Harren (1966) attempted to empirically test the Tiedeman-O'Hara model as it applied to groups of male college students. For this, he constructed an instrument called the Vocational Decision-Making Checklist (V.D.C.), which made use of a Q-sort method. The Q-sort task represented the four planning stages and two career decision making tasks; choice of major and future occupation. Based upon factor analytic procedures, the Tiedeman-O'Hara decision making paradigm was verified.

At approximately the same time as Harren's study, Dinklage (Note 5)



developed a classification of decision making styles based upon high school students' discussions of their decision making processes in educational, vocational and personal areas. The eight styles which she identified were: planning, intuitive, complaint, fatalistic, impulsive, delaying, paralytic and agonizing. The planning style was viewed as being most effective, while the intuitive style was sometimes effective. The remaining six styles were seen as either not effective or counter-productive.

Harren (Note6) reduced these styles into three categories: Planning, Intuitive and Dependent and described their characteristics.

The planning style is characterized by the person's tendency to perceive the consequences of earlier decisions on later circumstances. This style requires that the decision maker assume full responsibility for the decision. This individual is most likely to make use of relevant information about the self and the anticipated situation prior to making a decision. The decision is carried through in a deliberate and logical fashion, with the person assuming full control over the process. The Planner, as described by Harren, is the architect of his or her future.

The intuitive style of decision making also calls for the individual to take responsibility for the process and outcome. However, in this style, the person does not make effective use of information seeking, future orientation, or a weighing of merits for each alternative. Here, the decision is made based upon a personal fantasy or by an experienced "good feeling" associated with one of the alternatives. This style is less likely to result in long-term effective decision making due to the inability to accurately represent an unfamiliar situation in fantasy, or the tendency for internal feelings to fluctuate over time.

Unlike the previous styles, the dependent style is characterized by

a denial of personal responsibility for the decision. The responsibility is assigned to a source outside of the self. In this style, the person is heavily influenced by other's expectations, and the style is passive and compliant. While this tactic may reduce the initial anxiety associated with decision making, it is not likely to provide a means for achieving personal fulfillment or satisfaction through one's life decisions.

Following his initial research with the Vocational Decision-Making Checklist, Harren modified the instrument and changed the title to the Assessment of Career Decision Making (A.C.D.M.) (Arren; Note 1). The A.C.D.M. contains scales to measure decision making styles and stages relative to three decision making tasks: 1) choice of college, 2) choice of major, and 3) choice of future occupation.

The initial data obtained by utilizing the A.C.D.M. suggested that:

1. As class level increases, so does the percentage of students who have made a tentative choice of major.
2. As class level increases, so does the percentage of students classified as utilizing the planning style.
3. As class level increases, the percentage of students classified as using the Dependent style decreases.
4. There was no evidence to support a hypothesis of a positive correlation between class level and decision making stages.
5. Decision making styles and stages did not appear to be significantly related.
6. As class level increases, so does the percentage of students who utilize a single primary style.
7. There is some evidence that Sophomores regress in stage compared to freshmen, but juniors clearly progress.

In a 1977 study with a revised AODM, Harren et al. (Note 7) compared the decision making process with cognitive styles, gender, and sex role attitudes. It was confirmed that while gender has no effect upon the Career Decision Making process, that sex role attitudes and cognitive styles do show some effects. Cognitive styles were found to be of greater importance to the process than were sex role attitudes. In later

studies, gender was again not found to be influential in the decision making process (Lunneborg, 1978), while sex role attitudes and self-concepts were seen as significantly influential (Harren, Kass, Tinsley, and Moreland, 1978).

Additional factors which have been identified as influencing the C.D.M. process are cognitive complexity (Bodden & Klein, 1972) and conceptual level (Streufert, 1975). In the Bodden and Klein study, it was found that cognitively complex individuals were more likely to make occupational choices consistent with their personality typology (as determined by Holland's classification system) than were the less complex individuals. Streufert (1975) found that students who were classified as having high cognitive conceptual levels, were able to make better usage of both experiential and didactic career exploration courses.

### Summary and Research Questions

The purpose of this study was to assess the relationships between certain developmental factors and the degree of certainty of college students about their decisions to major in a field of study. Based upon the theoretical frameworks of Crites (1973), Harren (1976), Tiedeman and O'Hara (1963) and Winston, Miller, and Prince (1975), the following three research questions were investigated in this study.

#### Question 1

What are the relationships between a students' expressed level of certainty about their decision to major in a field of study (as measured by the certainty scale) and:

- a) Their decision making stage (as measured by the A.C.D.M.)
- b) Their levels of personal autonomy and mature interpersonal relationships (as measured by tasks 1 and 3 of the S.D.T.I.)

- c) Their levels of career maturity (as measured by the attitude scale of the C.M.I.)

### Analysis

Pearson Product-Moment Correlation Coefficients ( $r$ ) were computed to evaluate the relationships between the variables. An alpha level of .05 was used.

### Question 2

Do those students who are undecided about their college major have significantly different scores than students who have declared a major on: a) decision making stages (A.C.D.M.), b) personal autonomy and mature interpersonal relationships (tasks 1 and 3 of the S.D.T.I.), and c) career maturity (attitude scale of C.M.I.).

### Analysis

The mean scores of the decided and the undecided groups, on all three measures, were statistically compared by using a  $t$ -ratio approach. An alpha level of .05 was used.

### Question 3

What is the relationship between a student's decision making style (as measured by the A.C.D.M.) and their level of certainty about decisions to major in an area of study (as measured by the certainty scale).

### Analysis

A Pearson Product-Moment Correlation Coefficient ( $r$ ) was computed to evaluate the relationships between these two variables. An alpha level of .05 was used.

## METHOD

### Participants

The participants of this study were 104 men and women who were enrolled as degree seeking students at Virginia Commonwealth University. The sample consisted of 57 women and 47 men. There were 20 freshmen (10 men; 10 women), 35 sophomores (12 men; 23 women), 23 juniors (13 men; 10 women) and 26 seniors (12 men; 14 women). Their ages ranged from 17 years to over 25 years. The median age was 20 years. Of the 104 participants, 85 were full-time students and 19 were part time. Eighty-eight had declared a choice of major, and 16 were undecided.

All of the research participants were volunteers recruited from undergraduate Psychology classes by the primary investigator.

### Instrumentation

The cognitive stages and styles were measured by the Assessment of Career Decision Making (A.C.D.M.). This instrument was developed by Harren (1976), based upon the Tiedeman-O-Hara model of Career Decision Making. The A.C.D.M. consists of 131 true-false statements and measures an individual's style of career decision making as well as their developmental stage. Styles of decision making are classified as either Rational (DMS-R), Intuitive (DMS-I) or Dependent (DMS-D). These styles are based upon the degree to which individuals take personal responsibility for their decision making, as opposed to projecting responsibility outward onto fate, peers, parents and authority. Also, the degree to which a person uses logical versus emotional strategies is reflected. Three raw scores are obtained, reflecting each of the three styles. Each score is the number of items endorsed as true from a possible total of 7 for each style. The A.C.D.M. also measures the seven stage process of career decision

making. Scores on both the college major and occupational decision making tasks range from 10-40. An individual's stage is categorized as either Exploration (10-20), Crystallization (21-25), Choice (26-30) or Clarification (31-40). In this study, only the decision making task of choosing a college major (DMT-M) was used. The A.C.D.M. has been used in a number of studies as an evaluation tool for career counseling programs (Berman, Gelso, Greenfeig, & Hirsch, 1977; Evans & Rector, 1978). These studies demonstrated considerable construct validity of the A.C.D.M. Estimates of the test-retest reliability were determined by Harren, Kass, Tinsley, and Moreland (1978). For the DMT-M scale, the test-retest reliability was  $r = .84$ . For the three decision making style scales, the reliabilities were as follows: Rational = .85, Intuitive = .76, and Dependent = .85. A copy of the A.C.D.M. is found in Appendix A.

Crites' (1973) Career Maturity Inventory (Attitudinal Scale) was used to assess the students level of maturity of career decision making. The attitudinal scale is a 50 item scale using the true/false format. It is designed to assess a person's feelings and subjective reactions about the career choice process. The attitude scale of the C.M.I. reflects the following areas: (1) decisiveness in career decision making; (2) involvement in career decision making; (3) independence in career decision making; (4) orientation to career decision making; and (5) compromise in career decision making. A single raw score of 0 to 50 is determined by counting the total number of correct responses to the 50 items. This raw score may then be compared to a table of percentile rankings. In this study, individual's raw scores were used. The C.M.I. attitude scale has been used as a screening for career immaturity (Carek, Note 8); Crites, 1971; Hollender, Note 9), in assessing guidance needs (Hoyt, 1962; Pucel, 1972), evaluating career education programs (Kerr &

Cramer, 1972; Marland, 1972), and for testing in career counseling (Asbury; Note 10; Goodson, 1969). Crites's (1973) standardization sample yielded an internal consistency factor of .74. The test-retest reliability was  $r = .71$ . Crites argues that the scale has content validity because the items were written from conceptual definitions in career development theory. Several other researchers have provided evidence to support Crites' claim (Bartlett, 1968; Hall, 1962). The Career Maturity Inventory is found in Appendix B.

The levels of achievement of the developmental tasks of establishing autonomy and mature interpersonal relationships were measured by the Student Developmental Task Inventory-Revised (Winston, Miller and Prince, 1979). The S.D.T.I. is a 140 item inventory which utilizes a true/false format. This test measures three developmental tasks. Task 1 is developing autonomy. This task reflects students' level of emotional and instrumental autonomy as well as interdependence. Task 2 measures students' developing sense of purpose. This task reflects the level of appropriate educational plans, mature career plans and mature lifestyle planning. Task 3 measures students' development of mature interpersonal relationships. Subtasks are intimate relationships with the opposite sex, mature relationships with peers, and tolerance of others lifestyles and beliefs. Raw scores are obtained by counting the number of correctly answered responses. Raw score totals can be obtained for each of the three tasks, and for each of the subtasks. An overall raw score is determined by adding the scores of the major tasks. Winston, Miller and Prince (1979) determined the two week test-retest reliability for each major task to be: Task 1 (Developing Autonomy)  $r = .91$ ; for task 2 (Developing purpose)  $r = .90$ ; and for task 3 (Interpersonal relationships)  $r = .89$ . These data suggest a

relatively high level of temporal stability. The coefficient Alpha procedure yielded...internal consistency coefficients of .78 for Task 1, .85 for Task 2, and .73 for Task 3. Both concurrent validity of the congruent and differential types were determined. The Winston, Miller and Prince data suggests a high degree of concurrent validity. In the present study, only Tasks 1 and 3 were used. The Student Development Task Inventory is found in Appendix C.

Students' expressed levels of certainty and satisfaction with their decision of academic major was measured with a 7 point Likert-type scale; where 1 = very uncertain and 7 = completely certain. A copy of this scale may be found in Appendix D.

### Procedure

All potential participants were informed of the general nature and requirements of the study. Participation was voluntary, and an offer to provide feedback on student's test scores was made.

Each participant was given a packet containing an informed consent form (Appendix E), a demographic information questionnaire (Appendix D), The Student Developmental Task Inventory (Appendix C), The Career Maturity Inventory (Appendix B), and The Assessment of Career Decision Making (Appendix A). The instruments were given in the above order. The students completed and returned the packet during group administrations.

### Data Analysis

Research Question I examined the relationship between student's level of certainty with their decision to major in a field of study and their decision making stage, level of autonomy, and degree of career maturity. Pearson Product-Moment Correlation Coefficients ( $r$ ) were computed to evaluate the relationships between the variables. An alpha level of .05 was used.



The second research question focused on exploring the possible difference between students who were decided or undecided about their choice of college major. Possible differences on the variables of decision making stage, level of autonomy, maturity of interpersonal relationships, and degree of career maturity. The mean scores of the decided and the undecided groups, on all three variables, were statistically compared by using a t-ratio approach. An alpha level of .05 was used.

The third research question examined the relationship between students Decision Making Style and their level of certainty for a college major. A Pearson Product-Moment Correlation Coefficient ( $r$ ) was computed to evaluate the relationships between the two variables. An alpha level of .05 was used.

## RESULTS

In Table 1 a summary of the means and standard deviations for all variables is presented. The mean score for the expressed level of certainty of the choice of a major ( $\bar{M} = 5.30$ ) indicates that the students of this study were moderately certain of their choice. A score of 1 represented very uncertain, 4 represented neither certain or uncertain, and 7 reflected complete certainty.

The A.C.D.M. Scale (DMT-M) which reflects the student's progression through the stages of decision making with regards to the selection of a major had a mean score of 26.86. The possible range of scores is from 0 to 40. A low score (0-20) would be indicative of a student who is exploring a wide range of possible choices, but who has not yet made an active decision regarding a choice of major. A score of 30-40 would indicate that the student has already made a choice, and is currently finalizing plans for the implementation of the decision. This marks the completion of the planning phase and the beginning of the action phase. The DMT-M score can be best interpreted by translating them into the four stages of the decision making process. If students score from 10-20 on the DMT-M, they are categorized in the Exploration Stage. A score from 21 to 25 is reflective of the crystallization stage; from 26-30 is the Choice Stage; and from 31-40 represents the Clarification Stage. The Decision Making Stage in this sample was between the Crystalization and Choice Stages. Individual's at this point are viewed as having narrowed the choices down and are becoming ready to make a specific choice.

The S.D.T.I. scores on levels of personal autonomy ( $\bar{M} = 27.80$ ) reflected the student's levels of Instrumental and Emotional Autonomy (Task I), and the Maturity of Interpersonal Relationships and Tolerance

Table 1  
Means and Standard Deviations for all Variables

Variable	Mean	S.D.
A. C. D. M.		
Decision Making Task - Major	26.86	8.13
Decision Making Stage - Major	2.64	.84
Planning Decision Making Style	4.0	1.86
Intuitive Decision Making Style	2.93	1.31
Dependent Decision Making Style	1.47	1.38
S. D. T. I.		
Level of Personal Autonomy	27.80	7.08
Level of Maturity of Interpersonal Relationships	30.80	6.23
C. M. I.		
Level of Career Maturity	35.86	6.35
Questionnaire		
Level of Certainty of Major	5.30	1.65

Note.  $n = 104$ . A. C. D. M. = Assessment of Career Decision Making; S. D. T. I. = Student Developmental Task Inventory; C. M. I. = Career Maturity Inventory.

of others (Task III). The range of possible scores was from 0 to 48 on Task I and 0-44 on Task III. The larger the scores the greater the expressed levels of autonomy and maturity of interpersonal relationships.

The mean score ( $M = 35.86$ ) on the C.M.I. Attitude Scale reflected the levels of Decisiveness, Involvement and Independence in Career Decision Making Tasks. In developing his instrument, Crites (1973) found a mean score of 38.86 with a sample of college freshmen.

The A.C.D.M. scales which measure the three styles of Decision Making indicated that the mean score for the Planning Style ( $\underline{M} = 4.0$ ) was higher than either the Intuitive ( $\underline{M} = 2.93$ ) or the Dependent ( $\underline{M} = 1.47$ ) scores. This suggests that the students in this sample tended to rely more on the Planning Style of Decision Making than on the Intuitive or Dependent Styles. The Planning Style is characterized by the use of relevant information, assessment of anticipated consequences, and by the decision maker assuming responsibility for the decision and its outcomes. Harren (1977) described the planner as the architect of his or her future.

Pearson Product-Moment Correlational Analyses were used to assess the relationships between students' expressed levels of certainty with their choice of major and scores on the decision making task of choosing a major (A.C.D.M.), the decision making stage when deciding upon a major, the level of autonomy, degree of interpersonal maturity, and the degree of career maturity. Results of the correlational analyses are presented in Table 2.

A significant positive relationship was found between students level of certainty and their scores on the A.C.D.M. Decision Making Task (Major). These results indicate that as a student endorsed items reflecting a movement through the planning phases, and into the action phases (DMT-M), that student was more likely to express a higher degree of certainty regarding their choice of major ( $\underline{r} = 0.167$ ,  $\underline{p} < .05$ ). Likewise, a significant

positive relationship was found to exist between level of certainty and the decision making stage of the individual ( $\underline{r} = .293, p < .001$ ). As students move through the exploration, crystallization, choice or clarification stages of decision making, they, too, were likely to express increasing levels of certainty about their choice of major.

The relationships between students expressed level of certainty with their choice of major, and their dominant decision making style are also presented in Table 2. The three decision making styles were determined by scores on the A.C.D.M.

The relationship between the planning style of decision making and level of certainty was not significant.

A significant negative relationship ( $\underline{r} = -.272, p < .003$ ) was found between the use of an intuitive style and the participants level of certainty. The intuitive style is described as one which makes primary use of subjective decision making criteria such as a personal fantasy or an experienced "Good Feeling" about the possible outcomes. There is less reliance on objective criteria such as information seeking, weighing or merits for each alternative, and future orientation. This relationship indicates that as students make greater use of the intuitive style, their level of certainty decreased.

A significant negative relationship ( $\underline{r} = -.173, p < .039$ ) also existed between the dependent style and the level of certainty. This suggests that as students tended to avoid responsibility for their decision making, by deferring to an external authority, their level of certainty for that decision decreased.

Scores obtained on the S.D.T.I. (Task I), Developing Autonomy, were significantly related ( $\underline{r} = 0.265, p < .003$ ) to expressed levels of cer-

Table 2  
Pearson Product Moment Correlations Between Selected  
Variables and Participants "Level of Certainty".

Variable	<u>r</u>	<u>p</u>
A.C.D.M.		
Decision-Making Task (Major)	0.167	.045
Decision Making Stage (Major)	0.293	.001
Planning Decision Making Style	0.113	N.S.
Intuitive Decision Making Style	-0.272	.003
Dependent Decision Making Style	-0.173	.039
S.D.T.I.		
Level of Autonomy	0.265	.003
Degree of Interpersonal Maturity	- .048	N.S.
C.M.I.		
Degree of Career Maturity	0.311	.001

Note.  $n = 104$ . A.C.D.M. = Assessment of Career Decision Making;  
S.D.T.I. = Student Development Task Inventory; C.M.I. = Career  
Maturity Inventory.

tainty. This suggests that when individuals expressed increased levels of personal independence and autonomy from parents, begin to rely more upon themselves, their level of certainty in their choice of college major also increased.

Participants' scores on the S.D.T.I. (task III), Developing Interpersonal Relationships, were not significantly related with their level of certainty ( $r = -0.048$ ,  $p = \text{NS}$ ). Participants scores on the career maturity inventory, however, were significantly related to their level of certainty ( $r = 0.311$ ,  $p < .001$ ). This indicates that as students became more oriented towards career decision making issues, and they became more decisive and self reliant with their decision making attitudes, their level of certainty with their decision increased.

In Table 3 a comparison between decided and undecided students on the dimensions of decision making, personal autonomy, maturity of interpersonal relationships and degree of career maturity is presented.

By using a pooled variance comparison it was determined that no significant differences existed between the two groups when comparing the progression through the Decision Making Task for a college major, or along the dimension of Personal Autonomy. Likewise, no significant difference was determined with the variable of maturity of interpersonal relationships.

There did exist a significant difference between the groups when compared along the dimension of career maturity. The mean C.M.I. score of the decided group was 36.50 and the mean score for the undecided group was 32.37 ( $t = 2.45$ ,  $p < .016$ ). This indicates that those students who were in the decided group scored higher along the dimensions of orientation towards career decision making were more self reliant with their decision making, and were more decisive than were those students who were undecided.

Table 3  
Comparison of Decided and Undecided Students  
on Four Variables

Variable	Undecided Students <sup>a</sup>		Decided Students <sup>b</sup>		<u>t</u>	<u>p</u>
	M	S.D.	M	S.D.		
Decision Making Task (Major)	23.25	6.90	27.52	8.20	1.96	NS
Degree of Personal Autonomy	26.12	7.46	28.11	7.01	1.03	NS
Maturity of Interpersonal Relationships	31.56	7.19	30.67	6.08	-0.52	NS
Degree of Career Maturity	32.37	5.63	36.50	6.30	2.45	0.016

Note. n = 104; dp = 102.

a n = 16

b n = 88



## DISCUSSION

Throughout the literature, a number of investigators have examined the relationship between developmental and cognitive factors and the career decision making process. Galinsky & Fast (1966) hypothesized that the development of vocational decisiveness and career identity are components of the overall identity search of late adolescents. Davis (1965) and Munley (1975) concluded that confidence in vocational decisions and degree of career maturity are related to the level of psychosocial development which the individual has achieved. The data from the current study support this developmental approach. As students scored higher on levels of personal and instrumental autonomy, they reported feeling more certain about their decision regarding choice of major. The development of emotional and physical autonomy, and the formulation of initial vocational choices are considered by many developmental theorists to be among the initial tasks that face the college aged student.

Students' levels of mature interpersonal relationships, as determined by scores on the S.D.T.I., did not yield a significant correlation with certainty of major. This may indicate that interpersonal maturity, as measured by the Student Developmental Task Inventory, is either not a crucial component in the decision making process, or that the peer-centered, interpersonal tasks described by the S.D.T.I. occur on a timetable that is independent of the career selection process.

Crites (1973) considered an individual's level of independence in decision making, orientation towards career issues, and the involvement and the commitment to vocational choices as reflecting the degree of career maturity. Crites concluded that individuals increase their levels of career maturity by increasing their exposure to vocational issues and by having a greater number of life experiences. The data from the current study in-

dicade that the presence of the behaviors that reflect greater career maturity are directly associated with the student's level of certainty regarding choice of major. It may be that if students' have more exposure to relevant career and educational possibilities before the time of selecting a college major, then this decision will be made on the basis of relevant information and experiences. This should increase the student's level of certainty and commitment to the decision. According to Krumboltz (1976), individual learning experiences may influence the degree of career decisiveness experienced by the decision maker. The two types of learning experiences are instrumental learning, which occurs as a result of a chain of antecedents leading to a behavioral response which presents either positive or negative consequences, and associative learning, which results from the pairing of two or more previous learning experiences. The importance of past experiences on decision making appears to be supported by the current study.

Harren (1976) perceived the cognitive elements of the decision making task as also having a developmental focus. The data from this study supported that theory. As students scored higher on the exploration, crystallization, choice and clarification stages, their level of certainty about the decision also increased. This is consistent with Tiedeman and O'Hara's (1963) theory that...students utilize the first two stages as information gathering and planning stages. According to this conceptualization, if this groundwork can be completed before making a decision (the action phase) then the decision may be one which yields a greater level of certainty and commitment.

It also appears that the style that the decision maker employs will be related to the expressed level of certainty. Specifically, if the decision maker tends to rely on the authority of others, shunning the

responsibility for the decision, then the level of certainty associated with the decision is decreased. Likewise, if the decision maker utilizes a style which relies heavily upon personal feelings, fantasies or subjective criteria, then the level of certainty will be lowered. It was predicted that decision makers who employ the planning or rational style would show significantly higher levels of certainty of their decisions. This hypothesis was not supported in this study. While some styles of decision making can be negatively related to certainty of a decision, there does not appear to be a single style of decision making which increases the likelihood of certainty. Harren's (Note 6) findings that an individual's decision making style and that person's progression through the stages of decision making are not related, appear to be supported by the data of the current study. Students can certainly move through the early planning stages and towards the action stages, feel quite certain about their decision, yet not necessarily employ the planning style as their primary mode of decision making.

An alternative way of viewing the data is that it is possible that a third variable may interact with each decision making style to determine the level of certainty and decisiveness. Possibly, the choosing of a decision making style is a developmental process in itself.

Analyzing the scores of students when they are grouped according to decided or undecided status, with respect to selection of a college major, yielded a significant relationship between the status of major selection and overall scores on the C.M.I. Students who display higher levels of career maturity tended to be more likely to have made a decision regarding a college major, and be more certain about that decision. These data are consistent with Crites (1974) and Super & Overstreet's (1960) work which found levels of career maturity increase with age, experience and grade level. There is also data which indicates that students are more

likely to be undecided of their choice of major during the initial years of college than in the later years (Harren, Note 1). These studies support the finding that as students progress through their college years, their levels of career maturity, subsequent likelihood of selecting a college major, and feelings of certainty of that choice, increases.

These data do not support the presence of significant differences between the decided and undecided groups on the dimensions of autonomy, interpersonal maturity, or choice of decision making styles. This may support the idea that students often make tentative decisions regarding their choice of major prior to the development of psychosocial maturity or before they reach the action stages of the decision making process. Students may be encouraged by their universities, advisors, or through social expectations to declare a major before they had the opportunity to fully explore and crystallize the possibilities, and to make a well informed choice.

The data suggest that students tend to express greater levels of certainty regarding their choice of major as they progress through some of the cognitive and psychosocial developmental stages. This developmental progression may not be an important consideration of the student or the advisor when the student enters college and is faced with the task of declaring a college major. The act of declaring a major and the subsequent levels of certainty and satisfaction with that choice may be two separate issues.

#### Limitations of the Study

The current study included the scores of 104 college students. At least half of these students were recruited from the summer enrollment at Virginia Commonwealth University. This group of students may be, in some

ways, atypical from the larger university population. During the summer sessions, the V.C.U. overall population is approximately 40 to 50 percent of the regular school year enrollment. Also, the varied summer class schedules and the metropolitan location of the university contribute to the institution's attempt to respond to a diversity of summer students. For example,...these students may have been more scholastically motivated, academically deficient in some area, or were in a period of transition between college majors. Any of these possibilities could have influenced the outcome of the study. Also, all of the subjects were recruited from undergraduate Psychology classes. This, too, made the sample somewhat atypical from the overall university population. Finally, the number of female sophomores greatly exceeded any of the other groups. Freshmen males were the least likely of the groups to volunteer for the study. This bias may have influenced the outcome of this study in some way.

Because the design of this study collected primarily correlational data, no cause and effect relationships can be inferred. Further, the levels of correlations ( $R^2$ ) are quite low. They are, however, acceptable as exploratory data, particularly in light of the fact that all variables in the complex process of career decision making have not yet been identified.

Finally, two of the instruments, the C.M.I. and the S.D.T.I. have been standardized on samples of students that did not include the 25 year and older student population. Since these older students were included in the sample, the data may have been influenced by this factor.

### Implications for Counseling

The data from the current study indicate the importance of several developmental factors related to the student's sense of certainty about the choice of a college major. An understanding of these processes, and how

they relate to students' career decisiveness can be useful to career counselors, academic advisors, and to the students themselves. These individuals may find it helpful to view the career decision making process as one component of the overall developmental scheme. With this information, advisors could better help students to plot a course towards decision making which takes into account factors such as maturity, autonomy, interpersonal needs, and the person's current stage of decision making. It is hoped that advisors and students will focus on the process of developing a set of life decisions rather than directing all of their attention toward the achievement of a single outcome.

The instruments that were used in this study are relatively simple to administer, score and interpret. These and similar types of assessments might be utilized by advisors, counselors and students to better understand the position and the path of the student's development. If a student displays a significant lack of progress in a given area, then remedial tasks or supportive counseling may be indicated. Helping the student to grow, in a developmental sense, may help that individual to become more decisive and satisfied with the career decision making process. If counselors and students are aware of the decision making stages, along with the tasks which accompany each stage, then counseling may be directed towards helping the student to more effectively meet those specific challenges that are inherent to the developmental stage. This could facilitate successful movement from one stage to another. Once again, the process of development is viewed as the primary focus of counseling, not simply to achieve a single choice outcome.

#### Future Research Questions

While the results of the current study illuminate some aspects of the relationship between career decision making and developmental processes,

it is clear that further research in this area is necessary.

Future research projects might use a more diverse sample of subjects. Students who are in the final year of high school, or college students who are enrolled in other areas of study such as business administration, arts or the health professions may be studied. In addition, developmental patterns and career decision making issues among the non-traditional student group might be explored. These data could provide insight into the relationships between mid-life development and career decision making. In light of the data from the current study, a further examination of the developmental and cognitive differences between those students who have declared a major and those who are undecided may also prove to be fruitful.

The method of analyzing the current data has yielded a set of correlational relationships. The use of multiple regression techniques or path analysis may provide further information on the relative contributions of each of the developmental and cognitive variables to the decision making process. This type of analysis may better answer the question of "Do these developmental variables occur as separate phenomena or do they cluster as component parts of the decision making process?"

It is hoped that by further exploring the nature of the interactions between developmental variables and the career decision making process, that advisors, counselors and students may become more efficient and effective in the process of selecting a college major and career path.

## APPENDICES



## Appendix A

## ASSESSMENT OF CAREER DECISION MAKING (FORM C)

Vincent A. Harren, Ph.D.

This questionnaire is concerned with college students' progress toward making and carrying out decisions affecting their career. It is a way of finding out where a person is in his or her career planning, and what a person's present attitudes, feelings, needs, or concerns are.

Since this is the purpose, there are no right or wrong answers to the statements. On the answer sheet, mark A (True) or B (False) for each statement, depending on whether or not it applies to you; that is, something you could or would say about yourself.

There are three separate parts to this questionnaire: Part I has to do with your decision to go to college and how you feel about being in college; Part II deals with your decision or plans about your major field of study in college; and Part III assesses your decision or plans about your occupation. Treat each part separately. Don't worry about being consistent from one part to another, since each part assesses a different decision-making task: college, major, and occupation.

## PART I DECISION-MAKING: COLLEGE

This part has two sections. For Section A, My Decision to Go to College, think back to before you came to college and how you made your decision, as you remember it or think about it now. Mark an A (True) or B (False) on the answer sheet for each item.

Section A My Decision to Go to College

1. I came to college because my parents expected me to.
2. I decided to go to college when I realized that the careers I was interested in required college degrees.
3. I made my decision to go to college pretty much on the spur of the moment, without thinking much about it.
4. My high school teachers kept encouraging me to go to college.
5. Before coming to college, I studied the college catalogues carefully.
6. My reasons for going to college weren't very clear.
7. I really didn't have much choice; going to college was just the thing to do in my high school.

8. My friends who were going to college had a lot to do with my decision to go.
9. I talked with my guidance counselor (or teachers) in high school about going to college.
10. When I decided to go to college, I just listened to my feelings; it was what I wanted to do.
11. I came to college because I felt that having a college degree was important in order to be accepted.
12. Getting good grades in high school was important to me because it would increase my chances of getting to go to college.
13. Before deciding to go to college, I carefully considered other alternatives.
14. When I made up my mind to go to college, it just felt right inside.
15. Before deciding to go to college, I visited the campus to find out more about it.
16. When I was in high school, I can remember daydreaming about how great it would be to be a college student.
17. My decision to go to college was pretty much an intuitive one, not carefully planned out.
18. I came to college to please other people, not because I really wanted to.
19. I chose my electives in high school on the basis of what would help me most in college.
20. Everybody in my family went to college; I just never questioned it.
21. I don't think I had a reason for going to college; I just did it.

#### Section B How I Feel About Being in College

For the rest of the questionnaire, all of the statements are in the present tense. Mark the statement True (A) only if you feel this way right now. You may have felt this way in the past, or you could conceivably feel this way in the future, but if you aren't concerned about this right now, or if this is not relevant to you right now, mark it False (B).

22. I don't know what the instructors in my courses expect.
23. I believe I've been pretty successful in adjusting to college.
24. People are starting to listen to some of my ideas around here.

25. I've been talking some of my friends back home into going to college.
26. I'm trying to find out what the people I live with want of me.
27. People here seem to respect me and value my ideas.
28. I'm just beginning to feel a part of things around here.
29. I feel like we are all helping each other to accomplish our goals.
30. This college seems to be meeting my expectations and needs pretty well.
31. It's hard to know how to act at this school.
32. I don't feel that I really belong here yet.
33. Some of my instructors seem open to suggestions for improving their course.
34. I'm trying to get other students involved in things, instead of just sitting around.
35. I often talk to my instructors outside of class.
36. The encouragement and support I've gotten has helped me to try harder to do well.
37. I've been getting a lot of positive feedback from my instructors.
38. I'm less afraid to speak up in class when I don't agree with the instructor.
39. Most of the students here seem to have attitudes and values like mine.
40. I like to hang around on campus during my free hours.
41. Some of my instructors have helped me to get a more objective picture of myself.
42. I've had to change in some ways in order to get along with people here.
43. I'm learning to be more assertive to get what I want.
44. I wonder if further education is worthwhile for me.
45. I'm pretty satisfied with the way things are working out for me here.
46. I feel a sense of working together or team effort here.

47. Some of the instructors here are pretty hard to satisfy.
48. I've been asking other students how they like it here.
49. I really enjoy getting involved in group projects with other students.
50. Some of the advanced students have helped me become more realistic.
51. I've been telling my friends at other colleges what a great place this is.

PART II DECISION-MAKING TASK: MAJOR

What I Want to Study

52. I have a wide range of course interests.
53. I need to take a lot of different courses to see what I like.
54. I like most of the teachers and students in my major.
55. I'm pretty certain about my choice of major.
56. It would take a lot to make me change my mind about my major.
57. If I choose the wrong major, it could slow me down in getting through college.
58. I need to consider my interests in choosing a major.
59. I don't know how to go about choosing a major.
60. There just isn't anything else that I'd rather major in.
61. My past experiences in school should help me decide on a major.
62. The more I think about a major, the more confused I get.
63. It's a relief to have decided on my major.
64. I realize my major limits the kinds of future goals I can set for myself.
65. Some of the advanced courses in my major look pretty hard.
66. I enjoy telling people what I'm majoring in.
67. I need to decide on a major.
68. I've changed my mind about my major because of some of the courses I've taken.
69. I haven't definitely decided against any major.

70. I've decided what I will major in.
71. I wonder how I will fit in with other students in my major.
72. My major gives me a sense of purpose and direction.
73. I know what major I want, but I don't know what I could do with it after I graduate.
74. I get pretty wrapped up in discussions about things in my major.
75. I wish I knew what I wanted to study.
76. I don't know if I'm capable enough for the majors I'm considering.
77. I don't know what courses to take next semester.
78. Most of my friends are either in my major or a closely related one.
79. My interests and attitudes are like most of the students in my major.
80. I'm looking forward to getting into the advanced courses in my major.
81. I need to choose my courses more wisely than I have in the past.
82. When people know what your major is, they expect you to act in a certain way.
83. I need several electives that can't be in my major.
84. I see some disadvantages to the major I am considering.
85. I need to see an advisor in my major to plan the rest of my program.
86. There are just so many different kinds of courses I would like to take.
87. There are a number of majors which I have decided against.
88. I've looked into several programs, but I don't know what I'm really looking for.
89. I need a program that is broad and flexible.
90. Since choosing a major, my personality seems to be changing.
91. I really get involved in courses in my major.

PART III DECISION-MAKING TASK: OCCUPATION

Where I Am Heading After College

92. What I used to think I wanted to become doesn't seem practical anymore.
93. Almost any career seems appealing to me.
94. I think I'll be happy with the career I have chosen.
95. I wonder what kind of job I'll be able to get in my field.
96. My attitudes and outlook are becoming more like the people I know in my field.
97. I'm trying to decide between two or three possible careers.
98. My plans for the future are too indefinite.
99. I'm pretty certain about the occupation I will enter.
100. The occupation I have chosen will affect the kinds of friends I will have in the future.
101. I want to know what field of work I'm best suited for.
102. There are several careers which I have already decided against.
103. I don't know what I really want out of life.
104. I'm a lot happier now that my future career is clear to me.
105. I won't let anything get in the way to my reaching my goal.
106. I don't have enough experience for a job in my field.
107. I need information about occupations.
108. The more I learn about things in my field, the more involved I become.
109. I need to find out what jobs are available in my field.
110. I've decided on the field I am going into.
111. I'm interested in too many fields.
112. I've become more realistic in my thinking about possible careers.
113. I've changed my mind about what I wanted to become, now that I've learned more about the field.
114. I hope the people in my field will accept me.
115. I'm more certain of the fields I don't want than what I do want.
116. I need to decide on an occupation.

117. I know what's important to me, but I don't know what kind of career would meet most of my needs.
118. It's hard to know what to look for in a career.
119. I need to start thinking about job interviews.
120. The career I have chosen fits in with my personality.
121. I need to know more about the training required for some of the occupations I am considering.
122. I will probably have to move away from here to get a job in my field.
123. I don't know if I have the right kind of personality for the work I'm considering.
124. I feel I can overcome any obstacles in the way of my goal.
125. I can't decide on a career because my interests keep changing.
126. The people in my field have certain expectations of me.
127. It's unlikely that I will change my mind about my career plans.
128. I don't know how to go about deciding on a career.
129. There are not many job opportunities in the field that I really like.
130. I'm looking forward to getting out of school and getting started in my career.
131. I think I'm ready to choose a specialty within my chosen field.

## Appendix B

## CAREER MATURITY INVENTORY

1. Once you choose a job, you can't choose another one.
2. In order to choose a job, you need to know what kind of person you are.
3. I plan to follow the line of work my parents suggest.
4. I guess everybody has to go to work sooner or later, but I don't look forward to it.
5. A person can do any kind of work he wants as long as he tries hard.
6. I'm not going to worry about choosing an occupation until I'm out of school.
7. Your job is important because it determines how much you can earn.
8. Work is worthwhile mainly because it lets you buy the things you want.
9. The greatest appeal of a job to me is the opportunity it provides for getting ahead.
10. I often daydream about what I want to be, but I really haven't chosen a line of work yet.
11. Knowing what you are good at is more important than knowing what you like in choosing an occupation.
12. Your parents probably know better than anybody else which occupation you should enter.
13. If I can just help others in my work, I'll be happy.
14. Work is dull and unpleasant.
15. Everyone seems to tell me something different; as a result I don't know which kind of work to choose.
16. I don't know how to go about getting into the kind of work I want to do.
17. There is no point deciding on a job when the future is so uncertain.
18. I spend a lot of time wishing I could do work I know I can never do.



19. I don't know what courses I should take in school.
20. It's probably just as easy to be successful in one occupation as it is in another.
21. By the time you are 15, you should have your mind pretty well made up about the occupation you intend to enter.
22. There are so many things to consider in choosing an occupation, it is hard to make a decision.
23. I seldom think about the job I want to enter.
24. It doesn't matter which job you choose as long as it pays well.
25. You can't go very far wrong by following your parents' advice about which job to choose.
26. Working is much like going to school.
27. I am having difficulty in preparing myself for the work I want to do.
28. I know very little about the requirements of jobs.
29. The job I choose has to give me plenty of freedom to do what I want.
30. The best thing to do is to try out several jobs, and then choose the one you like best.
31. There is only one occupation for each person.
32. Whether you are interested in a particular kind of work is not as important as whether you can do it.
33. I can't understand how some people can be so certain about what they want to do.
34. As long as I can remember, I've known what kind of work I want to do.
35. I want to really accomplish something in my work - to make a great discovery or earn a lot of money or help a great number of people.
36. You get into an occupation mostly by chance.
37. It's who you know, not what you know, that's important in a job.
38. When it comes to choosing a job, I'll make up my own mind.
39. You should choose an occupation which gives you a chance to help others.
40. When I am trying to study, I often find myself daydreaming about

what it will be like when I start working.

41. I have little or no idea of what working will be like.
42. You should choose an occupation, then plan how to enter it.
43. I really can't find any work that has much appeal to me.
44. You should choose a job in which you can someday become famous.
45. If you have some doubts about what you want to do, ask your parents or friends for advice and suggestions.
46. You should choose a job which allows you to do what you believe in.
47. The most important part of work is the pleasure which comes from doing it.
48. I keep changing my occupational choice.
49. As far as choosing an occupation is concerned, something will come along sooner or later.
50. I am not going to worry about choosing a job since you don't have anything to say about it anyway.

## Appendix C

## STUDENT DEVELOPMENTAL TASK INVENTORY

Revised, Second Edition

1. Within the past month I recall accepting criticism from another without getting upset.
2. Within the past month I have found myself worrying about unimportant matters which interfered with the things I wanted to do.
3. I meet most day-to-day problems and solve them without needing to turn to someone for help.
4. Recently I made a poor grade in class due to my own neglect or lack of prior planning.
5. While working in a group problem-solving situation, I have personally contributed to the solution by suggesting a way for the group to solve the problem.
6. I have been an active participant in an effort to promote racial understanding among others within the past six months.
7. I can list at least three reasons why I chose a college education over other types of education or immediate work.
8. I have met with an academic advisor at least three times a term thus far this academic year.
9. Within the past month I have visualized, from time to time, what it would be like to be employed in a particular occupation.
10. I have prepared my employment placement credentials and resume.
11. I have determined the extent to which material things like houses, cars, clothes and money are essential for my future happiness.
12. I have participated in cultural activities on a regular basis (several times a month).

13. I find it easy to talk informally with members of the opposite sex.
14. I get along quite well without a member of the opposite sex with whom to share any of my time.
15. I have listened attentively to a friend discuss a personal problem within the past month.
16. I always tell my friends how I feel when I am angry with them.
17. It is a waste of money to attempt to rehabilitate criminals and social deviants.
18. I have attended a program such as an international coffee hour, or a Black history program, or a Chicano art show, etc. to learn about ethnically, racially, and culturally different people.
19. At home I present my views and ideas in such a manner that it is clear that I have given them serious thought.
20. I feel guilty when I don't obey my parents' wishes.
21. I am satisfied with my ability to behave as a self-disciplined person.
22. Within the past six months I have undertaken either an independent study or service project on my own.
23. At least once in the past six months, I have been called upon by someone needing help to get a nonpaying job done and I agreed to help.
24. During the past year I have been involved in at least one civic project, or activity - cleanup campaign, United Fund, blood drive, Heart Fund, for example.
25. I know all the basic requirements for graduating with a degree in my academic major.
26. This year I have successfully completed, or am presently working on, a project specifically designed to improve my learning and study habits.
27. I can list at least three things to do and three things to avoid during a job interview.

28. I am a member of at least one club or organization that is specifically related to my chosen occupational field.
29. I have thoughtfully decided the extent and frequency I drink alcoholic beverages.
30. I can state clearly my plan for achieving the goals I have established for the next ten years.
31. I feel confident in my ability to establish a close, warm, loving relationship with a member of the opposite sex.
32. In the past month there has been an occasion on which I was unable to say the "right things" to a member of the opposite sex.
33. I have several close friendships with both men and women.
34. Recently I resumed a relationship with someone I had not seen for at least one year.
35. I feel uncomfortable when around people who are not as well educated as I.
36. I am usually able to get my friends to accept my point of view, or to do what I want, without their being aware of it.
37. In the past three months I have met my responsibilities to my parents to my own personal satisfaction.
38. Within the past six months I have told my parents both that I love them and also that they have made me angry.
39. I chose the place in which I now live.
40. I have worked for and earned my total living expenses over a period of at least three months.
41. I can name three personal skills which I have offered as assistance to others.
42. I voted in the last local/state/national election.

43. I have declared my academic major.
44. Within the past three months I have read at least one non-required publication related to my major field of study.
45. I have identified several occupations in which I could be successful.
46. I have formulated a clear plan for getting a job.
47. I have followed through on nearly all my plans made during the past year.
48. I have made a definite decision about the number of children I will have in my family.
49. I express tender feelings toward others without personal discomfort.
50. Within the past three months I have helped my dating partner achieve a personal goal which he/she established.
51. I can accept teasing from my friends without becoming upset.
52. I introduce myself to strangers at parties.
53. I do not date some people because they are beneath my social status.
54. I have set up standards which I feel most people should meet.
55. Once or more within the past six months I have asked my parents to solve a really important personal problem for me.
56. It embarrasses me to become emotional in front of others.
57. I make sure that regular maintenance (oil, filter, checkup, etc.) is performed on my car, motorcycle, etc.
58. I keep an accurate record of money I spend.
59. I have helped another person become involved in solving mutual problems at school or work within the past month.

60. I voted in the last student election or referendum.
61. I am satisfied with my decision concerning the selection of a college major (course of study).
62. This year I have participated in at least three campus activities, or programs, or organizations, although neither required nor directly related to an academic course.
63. I know at least five requirements necessary for the occupations I am thinking about entering.
64. I have sought out leisure time activities for the purpose of helping me obtain an indication of my career interests.
65. I feel as if I am just drifting along with life.
66. I often achieve to the limits of my ability.
67. I have established a close, warm, loving relationship with a member of the opposite sex.
68. I have continued a loving relationship for at least three months when my partner was not with me.
69. I can name at least five close friends my age of the opposite sex in whom I have no romantic interests.
70. It sometimes bothers me if my leisure time activities are different from those of my friends.
71. When considering officer candidates in organizations of which I am a member, I always prefer a man as president.
72. I sometimes use phrases or words such as "Blacks have rhythm," or "honkies," or "people on welfare are looking for a free ride."
73. The principal deciding factor in the last major decision I made was whether I would please or displease my parents.
74. I get very angry at some of the dumb things my parents do and say.

75. It is hard for me to work intently on something for more than a short time.
76. I initiated an activity in the past week designed to help me achieve something important in my life.
77. I attended a community meeting recently, for example, neighborhood, residence hall, or college.
78. I have made a positive contribution to my community (campus, hometown, etc.) within the past three months.
79. I participate in campus activities which are neither required for, nor related to my academic program.
80. I have decided whether or not I will seek admission to a graduate or professional school.
81. I know where to find out what the prospects for employment are in any occupational field.
82. I am getting practical experience while in college through part-time work, or summer job, or internship, or similar employment related to my educational goals.
83. I have carefully thought through and decided the extent to which I am involved in regular organized religious activities.
84. I have clearly decided upon the place of marriage, children, and a career in my future.
85. Over the past year I have dated a member of the opposite sex three times or more a month.
86. A dating partner and I have discussed the limits to be placed on our physical relationship within the past six months.
87. In the past few months I have spent time with someone because I knew that he or she was lonely and needed company.
88. I frequently attend and/or participate in activities, not because I particularly enjoy them, but because my friends wish to do so.



89. It is necessary that others accept my point of view.
90. I think most women tend to respond to situations emotionally, while men respond by thinking.
91. I treat my parents as well as I should.
92. I need to feel sure of the outcome before attempting something new or different.
93. I have successfully completed an extended trip on my own.
94. I followed a systematic plan in making an important decision within the past thirty days.
95. I have joined with several people in achieving solution to a mutual problem within the past month.
96. I seldom bounce ideas off other people in order to obtain their views of my ideas.
97. I have a mature working relationship with at least one member of the academic community (faculty member, student affairs staff member, administrator).
98. I have developed a financial plan for achieving my educational goals.
99. Within the last month I have read an article or book that deals with some aspect of a career I am considering or have decided upon.
100. I can name at least two beginning-level work positions which would be open to me in business, industry, government, or education when I graduate.
101. I know what I will be doing a year from now.
102. I am actively involved in two or more different organized activities in addition to my academic studies.
103. I have successfully resolved major conflicts which have arisen in my dating relationship without destroying that relationship.

104. I have terminated a relationship with a member of the opposite sex without excessive hurt to either of us.
105. I make sure that I spend adequate time with my friends.
106. It is important to me that I meet the standards of behavior set by my friends.
107. There are some people I avoid because I dislike their religious views and/or practices.
108. I expect my dating partner to always meet my personal needs.
109. At least once within the past three months my parents and I have had a conversation of one hour or more covering topics unrelated to personal or family problems.
110. Within the past six months I have felt forced to do some things I didn't want to do because of my parents.
111. I set up a daily plan or schedule in order to get done the things I need to do.
112. Most of the time I get bored and quit studying after working on an assignment for a short time.
113. I do not hesitate to seek help in dealing with the pressures of college life.
114. I have identified and can list at least three ways in which I can be an asset to the community.
115. I have acceptable alternatives to my present educational plans in mind.
116. I am working at continuously improving my learning and study habits.
117. I am acquainted with at least three persons who are actively involved in the kind of work I visualize for myself in the future.
118. I have asked relatives, faculty members, or other persons to describe kinds of positions available in the fields in which they are working.

119. I have made a decision about reserving time each week for physical activity and/or exercise.
120. I have made no definite plans as to what I will be doing after college.
121. My dating partner and I regularly involve each other in decisions as to how we will spend our time together.
122. I believe that my dating partner should develop friendships with other members of my sex.
123. Generally I am able to communicate my true feelings to others.
124. Other people determine what our friendships will be like.
125. I feel comfortable disagreeing with my parents on topics such as my sexual activity, or my career choice.
126. The primary thing that got my last major school project through to completion was the regular reassurance I received.
127. Within the past month I have completed not less than ninety per cent of the short-term projects I initiated.
128. I do not allow others to take advantage of me.
129. Within the past month I sought help with a personal problem.
130. I have been active on at least one school committee or in one school group within the past six months.
131. Within the past three months I have had a serious discussion with a faculty member concerning something of importance to me.
132. I am familiar with at least three college majors and their requirements in terms of required courses and their accompanying academic skills.
133. I have recently examined the current labor market demand for people with a degree in the career area(s) I am considering.
134. I have listed a number of my specific personal abilities and limitations

which I can use as guidelines for narrowing the number of career areas I wish to explore.

135. I am currently involved in one or more activities which I have identified as being of help in determining what I will do with the rest of my life.
136. I have identified at least three people, other than my family, whom I am confident will be influential in my post-college future.
137. I have shared some of my private fears and doubts with my dating partner during the last month.
138. I consider having close relationships with members of the opposite sex to be an important part of my life pattern.
139. I resume relationships easily even after extended separations.
140. It is very important to me that I dress in similar fashion to my friends.

## Appendix D

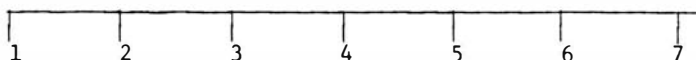
STUDENT CHARACTERISTICS

We would like to find out a little about you. Please answer the following questions about yourself.

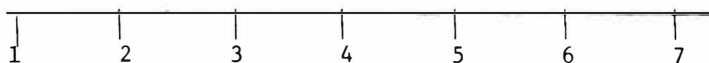
1. What is your current college class? Fr. So. Jr. Sr. Other (circle one)  
     Freshman      0-23 credits  
     Sophomore    24-53 credits  
     Junior        54-84 credits  
     Senior        85 credits and above
2. Sex: Male      Female      (circle one)
3. Age: 17, 18, 19, 20, 21, 22, 23, 24, 25 or older. (circle one)
4. Are you currently a degree seeking V.C.U. student? Yes    No   (circle one)
5. Are you a part-time or full-time student? part-time    full-time  
     (circle one)
6. What is your current college major? (If undecided, write undecided.)
7. Have you tentatively decided upon an occupation to pursue after graduation? Yes    No

Use the scale below to answer questions 8-10.

Totally Dissatisfied	Neither Satisfied or Dissatisfied	Completely Satisfied
-------------------------	---	-------------------------



8. How satisfied are you at this college?
9. How satisfied are you with your decision regarding your choice of major?
10. How satisfied are you with your tentative occupational choice?

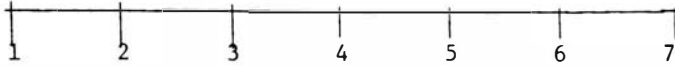


Use the scale below to answer questions 11-12.

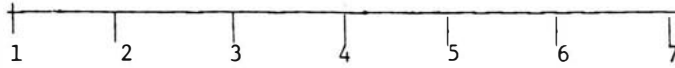
Very  
Uncertain

Neither  
Certain or  
Uncertain

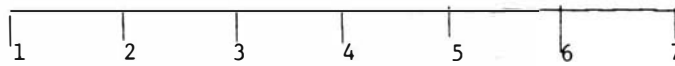
Completely  
Certain



11. How certain are you of your choice of college major?



12. How certain are you of your occupational choice?



13. What is your permanent home address? 14. Current local address?

## Appendix E

INFORMED CONSENT FORM

This research requires completion of some questionnaires which will take approximately 70-90 minutes of your time. These questionnaires are not a measure of your intelligence or knowledge, so there are no right or wrong answers. Rather, they are concerned with your career planning, decision making, and your style of perceiving and reacting to your changing environment.

Your responses to the questionnaires will be kept confidential. Your identity will remain anonymous in any reports of this research.

I thank you for your participation in this study. If you have any questions, please feel free to ask the examiner.

I hereby indicate that I am informed of the nature of this research, and consent to the use of the results by the researcher.

Print Name \_\_\_\_\_

Signature \_\_\_\_\_

Soc. Sec. # \_\_\_\_\_ Date \_\_\_\_\_

## REFERENCE NOTES

1. Harren, V.A. Assessment of career decision making. (Tech. Report #3). Southern Illinois University at Carbondale, 1977.
2. Prince, J. S. Identification and analysis of selected developmental tasks of college students. Unpublished doctoral dissertation, University of Georgia, 1973.
3. Ellis, A.B., & Tiedeman, D.V. Can a machine counsel? Information systems for vocational decisions. (Project Report #17). Graduate School of Education, Harvard University, 1968.
4. Kiviligan, D. Career Maturity Inventory: A review. Unpublished manuscript, 1980.
5. Dinklage, L.B. Students decision making: Studies of adolescents in secondary schools. (Report #6). Cambridge, Mass.: Harvard Graduate School of Education, 1969.
6. Harren, V.A. The influence of sex roles and cognitive styles on the career decision making of college men and women. (Education and Work Grants Program). National Institute of Education, 1976.
7. Harren, V.A., & Kass, R.A. The measurement and correlates of career decision making. Unpublished manuscript. Southern Illinois University at Carbondale, 1977.
8. Carek, R. The interrelations between social desirability, vocational maturity, vocational realism, and vocational decisions. Unpublished master's thesis, University of Iowa, 1965.
9. Hollender, J.W. Interrelationships of vocational maturity, consistency and realism of vocational choice, school grades, and age in adolescence. Unpublished master's thesis, University of Iowa, 1964.
10. Asbury, F.A. An experimental study of guidance treatments to accelerate vocational development in eighth grade males in Appalachia. Unpublished doctoral dissertation, University of Kentucky, 1967.



References

- Asbury, F. A. An experimental study of guidance treatments to accelerate vocational development in eighth grade males in Appalachia. Unpublished doctoral dissertation, University of Kentucky, 1967.
- Bartlett, W. E. Vocational maturity and personality variables of manpower trainees. Vocational Guidance Quarterly, 1968, 17, 104-108.
- Beilin, H. The application of general developmental principles to the vocational area. Journal of Counseling Psychology, 1955, 2, 53-57.
- Berman, M. R., Gelso, C. J., Greenfeig, B. R., & Hirsch, R. The efficacy of supportive learning environments for returning women: An empirical evaluation. Journal of Counseling Psychology, 1977, 24, 324-331.
- Bodden, J. L. & Klein, A. J. Cognitive complexity and appropriate vocational choice: Another look. Journal of Counseling Psychology, 1972, 19, 257-258.
- Buehler, C. The course of human life as a psychological problem. Leipzig: Hirzel, 1933.
- Carek, R. The interrelations between social desirability, vocational maturity, vocational realism, and vocational decision. Unpublished master's thesis, University of Iowa, 1965.
- Chickering, A. W. Education and identity. San Francisco: Jossey-Bass, 1969.
- Coons, F. W. The resolution of adolescence in college. Personnel and Guidance Journal, 1970, 48, 533-541.
- Crites, J. O. Ability and adjustment as determinants of vocational interest patterning in late adolescence. Dissertation Abstracts International, 1957, 17, 1593-1594.
- Crites, J. O. A model for the measurement of vocational maturity. Journal of Counseling Psychology, 1961, 8, 255-259.
- Crites, J. O. Parental identification in relationship to vocational interest development. Journal of Educational Psychology, 1962, 53, 262-270.
- Crites, J. O. Measurement of vocational maturity in adolescence: Attitude test of the Vocational Development Inventory. Psychological Monographs, 1965.
- Crites, J. O. Vocational psychology. New York: McGraw-Hill, 1969.
- Crites, J. O. Acquiescence response style and the Vocational Development Inventory. Journal of Vocational Behavior. 1971, 1, 189-200.

- Crites, J. O. Theory and research handbook for the Career Maturity Inventory. Monterey, Calif.: CBT/McGraw-Hill, 1973.
- Crites, J. O. Career development process: A model of vocational maturity. In E. L. Herr (Ed.), Vocational guidance and human development. Boston: Houghton and Mifflin, 1974, 296-320.
- Crites, J. O., & Semler, I. J. Adjustment, educational achievement and vocational maturity as dimensions of development in adolescence. Journal of Counseling Psychology, 1967, 14, 489-496.
- Davis, M. Vocational choice and self-others expectation congruence as a function of ego identity. Dissertation Abstracts International, 1965, 26, 1168.
- DeWinne, R. F., Overton, T. D., & Schneider, L. J. Types produce types - especially fathers. Journal of Vocational Behaviors, 1978, 12, 140-144.
- Dilley, J. S. Decision making ability and vocational maturity. The Personnel and Guidance Journal, 1965, 39, 423-429.
- Dinklage, L. B. Students decision making: Studies of adolescents in secondary schools, Report #6. Cambridge, Mass.: Harvard Graduate School of Education, 1969.
- Dunlop, R. S. The computerized counselor. Focus on Guidance, 1969, 2, 1-14.
- Ellis, A. B., & Tiedeman, D. V. Can a machine counsel? Information systems for vocational decisions. Project Report #17, Graduate School of Education, Harvard University, 1968.
- Erikson, E. H. Childhood and society. New York: Norton, 1950.
- Erikson, E. H. Identity: Youth and crisis. New York: Norton, 1968.
- Erikson, E. H. Youth and the life cycle. In D. E. Hamachek (Ed.) Human dynamics in psychology and education: Selected readings Boston: Allyn and Bacon, 1969, 305-316.
- Evans, J. R., & Rector, A. P. Evaluation of a college course in career decision making. Journal of College Student Personnel, 1978, 19, 163-165.
- Galinsky, M. D., & Fast, I. Vocational choice as a focus on the identity search. Journal of Counseling Psychology, 1966, 13, 89-92.
- Gelatt, H. B. Decision making: A conceptual frame of reference for counseling. Journal of Counseling Psychology, 1962, 9, 240-245.
- Girshick, M. A. An elementary survey of statistical decision theory. Review of Educational Research, 1954, 24, 448-466.

- Ginzberg, E., Ginsburg, S. W., Axelrad, S., & Herma, J. L. Occupational choice. New York: Columbia University Press, 1951.
- Goodale, J. G., & Hall, D. T. Inheriting a career: Influence of sex, values and parents. Journal of Vocational Behavior, 1976, 8, 19-30.
- Goodson, W. D. A study to determine the value of vocational college orientation groups by a comparison of various approaches. Dissertation Abstracts International, 1969, 30, 1921.
- Grandy, T. G., & Stahmann, R. F. Types produce types: An examination of personality development using Holland's theory. Journal of Vocational Behavior, 1974, 5, 231-239.
- Greenhaus, J. H., & Simon, W. E. Career salience, work values, and vocational indecision. Journal of Vocational Behavior, 1977, 10, 104-110.
- Hall, D. W. Vocational development in adolescence: The measurement of vocational maturity. Dissertation Abstracts International, 1969, 30, 2414.
- Harren, V. A. The vocational decision making process among college males. Journal of Counseling Psychology, 1966, 13, 271-277.
- Harren, V. A. A model for career decision making for college students. Journal of Vocational Behavior, 1976, 14, 119-133.
- Harren, V. A. The influence of sex roles and cognitive styles on the career decision making of college men and women. Education and Work Grants Program, National Institute of Education, 1976.
- Harren, V. A. Assessment of career decision making. Technical report #3. Southern Illinois University at Carbondale, 1976.
- Harren, V. A., & Kass, R. A. The measurement and correlates of career decision making. Unpublished manuscript; Southern Illinois University at Carbondale, 1977.
- Harren, V. A., Kass, R. A., Tinsley, H. E. A., & Moreland, J. R. Influence of sex role attitudes and cognitive styles on career decision making. Journal of Counseling Psychology, 1978, 25, 390-398.
- Harren, V. A., Kass, R. A., Tinsley, H. E. A., & Moreland, J. R. Influence of gender, sex role attitudes and cognitive complexity on gender dominant career choices. Journal of Counseling Psychology, 1979, 26, 227-234.
- Harris, J. The computerization of vocational information. Vocational Guidance Quarterly, 1968, 17, 12-20.
- Harris, J. The computer: Guidance tool for the future. Journal of Counseling Psychology, 1974, 21, 331-339.
- Havighurst, R. J. Human development and education. New York: Longmans, Green and Co., 1953.

- Hershenson, D. B. A life stage vocational development system. Journal of Counseling Psychology, 1968, 15, 23-30.
- Hershenson, D. B., & Langbauer, W. R. Sequencing of intrapsychic stages of vocational development. Journal of Counseling Psychology, 1973, 20, 519-521.
- Hershenson, D. B., & Lavery, G. J. Sequencing of vocational developmental stages: Further studies. Journal of Vocational Behavior, 1978, 12, 102-108.
- Hilton, T. L. Career decision making, Journal of Counseling Psychology, 1962, 9, 291-298.
- Hollender, J. W. Interrelationships of vocational maturity, consistency, and realism of vocational choice, school grades, and age in adolescence. Unpublished master's thesis, University of Iowa, 1964.
- Hoyt, K. B. Specially oriented student research program. Iowa City, Iowa: University of Iowa Press, 1962.
- Jackson, R. M., & Meara, N. M. Father identification, achievement and occupational behavior of rural youth: A five year follow-up. Journal of Vocational Behavior, 1977, 10, 82-91.
- Jordaan, J. P. Life stages as organizing modes of career development. In E. L. Herr (Ed.) Vocational guidance and human development. Boston: Houghton Mifflin, 1974
- Jordaan, J. P. Career development theory. Reviews in Psychology, 1977, 26, 107-114.
- Jordaan, J. P., & Heyde, M. B. Vocational maturity in the high school years. New York: Teacher's College Press, 1979.
- Jordaan, J. P., & Super, D. E. The prediction of early adult vocational behavior. In D. F. Ricks, A. Thomas and M. Roff (Eds.) Life history research in psychopathology: III, Minneapolis: University of Minnesota Press, 1974.
- Katz, M. Decisions and values: A rationale for secondary school guidance. New York: College Entrance Examination Board, 1963.
- Katz, M. A model of guidance for career decision making. Vocational Guidance Quarterly, 1966, 15, 2-10.
- Katz, M. Contribution of academic interest measures to differential prediction of marks. Journal of Educational Measurement, 1972, 9, 1-11.
- Katz, M., Norris, L., & Pears, L. Simulated occupational choice: A diagnostic measure of competencies in career decision making. Measurement and Evaluation in Guidance, 1978, 10, 222-232.
- Kiviligan, D. Career Maturity Inventory: A review. Unpublished manuscript, 1980.

- Kneflkamp, L. Widick, C., & Parker, C. A. (Eds.) Applying new developmental findings. San Francisco: Jossey Bass, 1978.
- Kohlberg, L. Development of children's orientation towards moral order: Sequence in the development of moral thought. Vita Humana, 1973, 6, 11-36.
- Krumboltz, J. D. A social learning theory of career selection. Counseling Psychologist. 1976, 6, 71-79.
- Krumboltz, J. D., Mitchell, A. M., & Jones, G. B. A social learning theory of career selection. In J. M. Whitely and A. Resnikoff (Eds.) Career Counseling, Monterey, Cal.: Brooks Cole, 1978.
- Krumboltz, J. D., & Thoresen, C. E. The effects of behavioral counseling in group and individual settings on information seeking behavior. Journal of Counseling Psychology, 1964, 11, 324-333.
- Levinson, D. J., Darrow, C. N., Klein, E. B., Levinson, M. H., & McKee, B. Periods in the adult development of men: Ages 18-48. Counseling Psychologist, 1976, 6, 21-25.
- Levinson, D. J., Darrow, C. N., Klein, E. B., Levinson, M. H., & McKee, B. The seasons of a man's life. New York: Knopf Co., 1978.
- Lowry, J. "Auto-coun", A computer based automated counseling simulation system. Personnel and Guidance Journal, 1966, 45, 5-15.
- Luckey, E. B. The family: Perspectives on its role in development and choice. In E. L. Herr (Ed.), Vocational guidance and human development, Boston: Houghton Mifflin, 1974, 203-231.
- Lunneborg, P. W. Sex and career decision making styles. Journal of Counseling Psychology, 1978, 25, 390-398.
- Marland, S. P. Career education now. Vocational Guidance Quarterly, 1972, 20, 188-192.
- Miller, T. K., & Prince, J. S. The future of student affairs: A guide to student development for tomorrow's education. San Francisco: Jossey Bass, 1976.
- McCall, J. R. Growing up. New York: Paulist Press, 1973.
- McDonald, A. P. Birth order and personality. Journal of Consulting and Clinical Psychology, 1971, 36, 171-176.
- Munley, P. H. Erik Erikson's theory of psychosocial and vocational development. Journal of Counseling Psychology, 1975, 22, 314-319.
- Munley, P. H. Erikson's theory of psychosocial development and career development. Journal of Vocational Behavior, 1977, 10, 261-269.
- Neice, D. E., & Bradley, R. W. Relationship of age, sex and educational groups to career decisiveness. Journal of Vocational Behavior, 1979, 14, 271-278.

- Oberlander, M. I., Fravenfelder, K. J., & Heath, H. Ordinal position, sex of siblings, sex and personal preference in a group of 18 year olds. Journal of Consulting and Clinical Psychology, 1970, 35, 122-125.
- Padgett, K. L. Factors affecting career decisions. Dissertation Abstracts International, 1978, 39, 785.
- Perry, W. Intellectual and ethical development in the college years. New York: Holt, Rinehart and Winston, 1970.
- Piaget, J. Logic and psychology. New York: Basic Books, 1956.
- Pitz, G. F., & Harren, V. A. An analysis of career decision making from the point of view of information processing and decision theory. Journal of Vocational Behavior, 1980, 16, 320-346.
- Price, G. E. Counselor and computer effectiveness in helping students to select courses. Journal of Counseling Psychology, 1974, 21, 351-354.
- Prince, J. S. Identification and analysis of selected developmental tasks of college students. Unpublished doctoral dissertation, University of Georgia, 1973.
- Pucel, D. J., & Nelson, H. F. Minnesota Scholastic Aptitude Test and Vocational Development Inventory success norms. Minneapolis: Dept. of Industrial Education, 1972.
- Ridgeway, C. Parental identification and patterns of career orientation in college Women. Journal of Vocational Behavior, 1978, 12, 1-11.
- Roe, A. Early determinants of vocational choice. Journal of Counseling Psychology, 1957, 4, 212-217.
- Rosenberg, H. G. Effects of economic outlook information and career decision making. Dissertation Abstracts International, 1978, 38, 2565-2566.
- Rush, J. C., Peacock, A. C., & Milkovich, G. T. Career stages: A partial test of Levinson's model of life/career stages. Journal of Vocational Behavior, 1980, 16, 347-359.
- Schachter S. The psychology of affiliation. Stanford, Cal.: Stanford University Press, 1959.
- Shappell, D. L., Hall, L. G., & Tarrier, R. B. Perceptions of the world of work: Inner city vs. suburbia. Journal of Counseling Psychology, 1971, 18, 55-59.
- Streufert, D. E. Differential classroom effects upon the vocational decision making process of male college students groups according to conceptual level. Dissertation Abstracts International, 1976, 36, 7879-7880.

- Super, D. E. The dynamics of vocational adjustment. New York: Harper, 1942.
- Super, D. E. Vocational adjustment: Implementing a self-concept. Occupations, 1950, 30, 88-92.
- Super, D. E. A theory of vocational development. American Psychologist, 1953, 8, 185-190.
- Super, D. E. Dimensions and measurement of vocational maturity. Teacher's College Record, 1955, 57, 151-163.
- Super, D. E. Computer assisted counseling. New York: Teacher's College Press, 1970.
- Super, D. E. A life span, life space approach to career development. Journal of Vocational Behavior, 1980, 16, 282-298.
- Super, D. E., Crites, J. O., Hummel, R. C., Moser, H. P., Overstreet, P. L. & Warnath, C. F. Vocational development: A framework for research. New York: Teacher's College, Bureau of Publications, 1957.
- Super, D. E., & Overstreet, P. L. The vocational maturity of ninth grade boys. New York: Teacher's College Press, 1960.
- Super, D. E., Starisheusky, R., Matlin, R., & Jordaan, J. P. (Eds.) Career development: Self concept theory. New York: College Entrance Examination Board, 1963.
- Svenson, O. Process description of decision making. Organizational Behavior and Human Performance, 1979, 23, 86-112.
- Tiedeman, D. V. Occupational choice: An approach to a general theory: A review. Harvard Educational Review, 1952, 22, 423-426.
- Tiedeman, D. V. Decisions and vocational development: A paradigm and its implications. Personnel and Guidance Journal, 1961, 40, 15-21.
- Tiedeman, D. V. and O'Hara, R. P. Career development: Choice and adjustment. Princeton, N. J.: College Entrance Examination Board, 1963.
- Tilden, A. J. Is there a monotonic criterion for the measurement of vocational maturity among college students? Journal of Vocational Behavior, 1978, 12, 43-52.
- Tolbert, E. L. Counseling for career development. Boston: Houghton Mifflin To., 1980.
- Touchton, J. G., Wertheim, L. C., Cornfeld, J. L., & Harrison, K. H. Career planning and decision making. A developmental approach to the classroom. In C. A. Parker (Ed.), Encouraging development in College students, Minneapolis: University of Minnesota Press, 1978.

- Vernon, P. E. The structure of human abilities. London: Methuen, 1950.
- Wagman, M. Plato DCS: An interactive computer system for personal counseling. Journal of Counseling Psychology, 1980, 27, 16-30.
- Weiss, H. M. Social learning of work values. Journal of Applied Psychology, 1978, 63, 711-718.
- Weller, L., Shlomi, A., & Zimont, G. Birthorder, sex and occupational interest. Journal of Vocational Behavior, 1976, 8, 45-50.
- Winston, R. B., Miller, J. K., & Prince, J. S. Assessing student development: A preliminary manual for the Student Developmental Task Inventory. Athens, Georgia: Student Development Associates, 1974, (Second edition, 1979).
- Woody, R. H. Vocational counseling with behavioral techniques. Vocational Guidance Quarterly, 1968, 17, 97-103.
- Zaccaria, J. S. Developmental tasks: Implications for the goals of counseling. Personnel and Guidance Journal, 1965, 44, 372-375.



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