THE UNIVERSITY OF CALGARY

CAREER DECISION-MAKING PATTERNS OF ACADEMICALLY GIFTED, RURAL ADOLESCENTS

BY

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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF SCIENCE

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

CALGARY, ALBERTA

MARCH, 1991

ISBN 0-315-66973-X

THE UNIVERSITY OF CALGARY

FACULTY OF GRADUATE STUDIES

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ABSTRACT

The present study is an exploratory investigation looking at gender and grade level differences in the career decision-making patterns of academically gifted, rural adolescents. Students selected to participate had obtained a reading, language or mathematics score at or above the 95th national percentile on the Canadian Achievement Test. The sample consisted of 73 students (26 males and 47 females) attending grades 9 through 12 within the Foothills School Division No. 38, Alberta. The grades 9-10 students formed one grade level group as did the grades 11-12 students. All subjects completed Crites' Career Maturity Inventory - Attitude Scale: Counseling Form B-1 and Holland's Self-Directed Search, on a voluntary basis.

There were five dependent measures in this study: degree of congruence between personality and career aspiration, aspirational level, career maturity, decisiveness and independence. A 2 X 2 MANOVA found no significant gender or grade level differences nor interaction at the $p < .05$ level for the set of dependent variables. An examination of interrelationships among the dependent variables using Pearson Product Moment

Correlations found a significant positive relationship between congruence and independence ($r = .30$, $p < .05$, two-tailed).

Although no overall gender differences were apparent, gifted females aspired to the highest level occupations less frequently than their male counterparts and to the lower level occupations more frequently than the male subjects. The presence of a positive relationship between congruence and independence but no significant relationship between congruence and decisiveness suggests that these rural, gifted students may be experiencing career indecision to a certain extent. Thus, rural, gifted females may require encouragement to increase their career aspirations, while both male and female rural, gifted students may benefit from career counselling directed at helping them to narrow down their career choices.

ACKNOWLEDGEMENTS

I would like to express my appreciation and sincere thanks to the following people, whose support and assistance have been instrumental in the completion of this thesis:

Dr. Anita K. Li, my supervisor, for providing an ideal mix of guidance and encouragement.

Dr. Tak S. Fung, for his assistance with the computer analysis as well as his perpetually optimistic outlook.

Dr. Michael Pyryt, for his statistical advice and reassurance.

Dr. Garth Benson, for accepting the added responsibility of serving as an external on my committee.

Dr. Gerry Porter, Linda Sawyer, Denise Canfield and the entire staff of the Foothills School Division for going above and beyond the call of duty.

The students who participated, for their time and energy in making this study possible, and who hopefully learned something about themselves in the process.

My parents, whose support and confidence have helped me to achieve my goals in life.

And finally, Lorrie, my wife, for being the bright light at the end of my tunnel.

TABLE OF CONTENTS

CHAPTER Page

LIST OF TABLES

LIST OF FIGURES

Chapter One

Introduction

It is only recently in the history of our society that individuals have had the opportunity to choose a career or vocation. Prior to the industrial revolution, for instance, there was little in the way of career choice. Since the Second World War and the advancement of capitalism, however, there has been a large increase in the variety of jobs available and as a result, certain changes have occurred in regard to how occupations are viewed. As Raskin (1985) attests, "the importance of occupational choice to identity formation cannot be overstated. What one does for a living is a primary source of information about social class, education, and values. One's occupation is a public statement of one's identity even when one's job is not necessarily a well-thought-out step on a career ladder" (p. 26).

The fact that not all career choices are carefully considered, results in some interesting questions. Would society be where it is today if Albert Einstein had endeavored to pursue something other than his ambitions in physics? Are there potential Einsteins who may have been groomed to take over the family business in lieu of promising scientific careers? Obviously, these questions

can never be answered, but the thought of misplaced potential occurring within our society is a perplexing one indeed.

There are many factors which contribute to how individuals choose particular vocational paths. Over the last 35 years, an increasing amount of research has been directed at career development, from Super's (1957) Career Pattern Study in which grade 9 boys were studied longitudinally, to the recent increase in studies examining the career development of women and minorities. The factors investigated have included genetic, predispositional, environmental and familial influences and yet no single factor has been identified that can consistently predict career choice. One group of individuals for whom career choice deserves closer examination is the gifted and talented.

The gifted and talented are perhaps one of the most neglected subgroups of students in today's educational system. If one examines the history of interest in the gifted in North American education, a cyclical pattern emerges. Essentially, interest was peaked during the five years following Sputnik in 1957 and the last half decade of the 1970's (Tannenbaum, 1983). The latter spark of enthusiasm was likely the result of the Marland Report (1972) in the United States which allocated funds for the education of the gifted and talented. As a result of the Marland Report, Public Law 93-380 was adopted with the

mandate to plan, develop, operate and improve programs for the gifted in education agencies, graduate training institutions and other related projects.

Accordingly, there is a renewed interest in North America in forming efforts on meeting the educational needs of the academically gifted and talented. In Alberta, the Report of the Minister's Task Force on Gifted and Talented pupils (1983) led to a need for identification of and increased provisions for these students. In the past, identification of the gifted has been based primarily on the intelligence quotient. More recently, six domains of excellence including intellectual ability, specific academic aptitude, creative thinking, visual and performing arts, social leadership, and psychomotor skills have been used to identify the gifted (Sillito & Wilde, 1983). With the addition of these categories to the definition of giftedness, more individuals may now be considered as gifted and talented and thus, recognition of their needs assumes greater importance.

As Blackburn and Erickson (1986) attest, "to manage their gifts and talents and develop the human relations and leadership skills necessary to use their talents, they require guidance that may vary significantly from that required by other students" (p. 552). Nowhere is this statement more true than in the area of career development. Accordingly, Hoyt and Hebeler (1974) argue that career education programs for the gifted must differ

in several ways from career education for other segments of the population. Moore (1978) suggests that career education for the gifted should basically stress challenging occupations, scholarly professions, and independent types of employment.

When career education for the gifted is further considered, there are several points which deserve attention. While career development is a difficult process under the best of circumstances, gifted individuals seem to be faced with a host of additional problems. The fact that they typically possess many potentialities and varied interests tends to complicate their selection of a career simply by the numerous possibilities open to them. On the other hand, expectations of parents and close friends, or society in general, may work to restrict their range of choices.

Restrictions in terms of career opportunities may be especially true in a rural setting. Rural areas typically offer limited employment opportunties and virtually no post-secondary education in the immediate vicinity. Thus, in most cases it is necessary for the rural, gifted individual to leave the area if considering higher education. The lure of rural living may be so strong, however, that the individual does not wish to leave. Alternatively, he/she may seek out higher education and then return to the rural community but experience

limitations in respect to suitable job opportunities and/or subsequent advancement.

The situation becomes even more complex when one considers the plight of a gifted female living in a rural setting. Despite the fact that the feminist movement of the sixties has made dramatic changes in how society views working women, rural communities have tended to hold on to traditional roles and values. It is therefore likely that gifted females in a rural setting experience more difficulty in terms of the career development process than their male counterparts. It is suppositions such as these that this study will attempt to address in addition to providing insight into rural, gifted students' development of career aspirations and career maturity throughout high school.

Purpose of the Study

The present study is an exploratory one investigating the career aspirations and career maturity of academically gifted secondary school students residing in a small town or rural setting. As it stands, research in the area of career development is relatively recent, having only gained widespread popularity over the last two decades. As a result, there is a paucity of empirical studies specifically targeting the gifted and talented population in this regard, with the exception of the well-known

Terman and Oden (1947) investigation of gifted children growing up. There has, however, been a recent show of concern for gifted females' avoidance of mathematics and science-related programs. The fact remains, though, that relatively little attention has been directed at the career development of gifted or rural adolescents and as might be expected, less still directed at rural, gifted students.

Thus, academically gifted secondary students attending school in a rural setting are targeted within the present study in regard to their occupational level aspired to and their career maturity. In addition, the variables career decisiveness, independence and congruence between career aspiration and personality type are also examined. Comparisons are made in terms of gender and grade level which will hopefully aid school personnel in understanding differences between males and females in this subgroup of students and when vocational counselling may be most appropriate for them during the high school years. It may also provide an indication of how one of the most propitious groups of adolescents handles a decision-making process that could possibly affect society as a whole.

Definition of Terms

Since several of the terms utilized within the present study have different meanings depending upon the context

in which they are used, the terms academically gifted, rural/small town, career aspirations and career maturity will be defined as they are to be understood within this study.

Academically Gifted

The term "gifted" has historically referred to individuals obtaining an IQ score at or above a certain criterion on a standardized intelligence test. More recently, six domains of excellence including intellectual ability, academic aptitude, creative thinking, visual and performing arts, social leadership, and psychomotor skills have been used to identify the gifted (Sillito & Wilde, 1983). For the present study, academic achievement as measured by a standardized achievement test was used as the criterion measure for academic giftedness. The rationale for using this measure was that it combined the reporting of both norm-referenced and criterion-referenced information. Such a combination allowed the students to be compared against both a national norm group and a local norm group in respect to level of academic achievement. Consequently, it was those students who were currently achieving academic success who were targeted. Throughout this study, the term "gifted" will be used to refer to those students who have been identified as academically gifted, for the sake of brevity.

Rural/Small Town

The latest census report by Statistics Canada (1987) defines urban residents as "persons living in an area having a population concentration of 1,000 or more and a population density of 400 or more per square kilometre" (p. xix). Rural occupants are described simply as "persons living outside urban areas" (p. xviii). Of the eight communities involved in the present study, four had populations of less than one thousand, two consisted of slightly over one thousand people, and the remaining two towns had populations of approximately five thousand people. Thus, several of the communities did not fulfill the population criterion of the Canadian definition of rural, but they almost certainly applied in terms of their low population density. Regardless, each of the communities was a small town of varying degree and consequently, for the purposes of this study the subjects will be referred to as "rural" since they were not situated in a typical large urban centre.

Career Aspiration/Career Maturity

Crites (1976) has identified two discernible aspects of career decision-making: career choice content and career choice process. The former refers to the specific

occupation chosen, whereas the latter designates the process the individual goes through in arriving at his/her decision. For the purposes of this study, the terms career aspiration and career maturity will be considered analogous to Crites' terms career choice content and career choice process, respectively.

Career aspiration is therefore defined as a specific job choice which the person has considered or thought about doing. Some of the literature refers to career aspiration as a person's fantasy occupation, having little basis in reality. In the present study, career aspiration may be thought of as synonymous with job choice. The actual wording used in this study to elicit an individual's job choice was as follows:

> List below the occupations you have considered in thinking about your future. List the careers you have daydreamed about as well as those you have discussed with others. Try to give a history of your tentative choices and daydreams. Put your most recent job choice on Line 1 and work backwards to the earlier jobs you have considered (Holland, 1973, p. 119).

Since several jobs were likely to be listed, only the job choice on line 1 was considered as the person's career aspiration. Thus, the response elicited was considered to be as realistic a job choice or aspiration as possible.

Career maturity, or its analogous term career choice process, is defined as "the variables involved in arriving at the declaration of a career choice" (Crites, 1978, p. 4). In this instance, Crites' (1978) Career Maturity Inventory - Attitude Scale: Counseling Form B-1 (CMI-AT) was chosen to assess this construct. The CMI-AT yields an overall career maturity score as well as five factor scores for career decisiveness, independence, involvement, orientation and compromise. In addition to the overall career maturity score, this study utilized the two factor scores for career decisiveness and independence.

Chapter Two

Literature Review

This section will review various theories of career development and career maturity which are relevant to the present study. In addition, the career decision-making patterns of gifted individuals will be described as well as related empirical findings including gender differences and rural populations. Research questions generated by the various theories and empirical findings will also be presented.

Theories of Career Development

Two individuals who have revolutionized vocational psychology through their contributions to theory building are John Holland and Donald Super. Although each has a different orientation towards vocational psychology, their views do tend to overlap in certain respects. Holland's theory is directed at matching an individual's personality characteristics with an appropriate work environment, whereas Super's theory deals with the developmental process of vocational behavior. As is the case with career aspirations and career maturity, Holland's and Super's perspectives also tend to fit quite well into the realms

of career choice content and career choice process, respectively.

Holland's work draws largely from the trait-factor theory which is the oldest approach applied to vocational counselling. It was first described by Frank Parsons in 1909, and as he conceived it, "analysis of the individual consists of canvassing his experiences by means of questionnaires and interviews in order to ascertain the nature of his abilities, interests, and background" (Super, 1957, p. 168). Generally, the theory assumes that appropriate vocational choices are made when an individual's abilities and interests have been matched with the right job. Thus, by way of aptitude and interest measures, one is matched with an occupation performed by people having similar aptitudes and interests.

Holland's theory is also based on the assumption that vocational interests are one aspect of what is commonly called personality and that the description of an individual's vocational interests also describes the individual's personality (Weinrach, 1984). It was his experience in the military as an induction interviewer between 1942 and 1946 that led Holland to conclude that people could be classified into a relatively small number of types. Those types, which have been reformulated since their original inception, are: realistic, investigative, artistic, social, enterprising and conventional (RIASEC).

This collection of personality types is also used to categorize work environments. Accordingly, work environments are characterized by the people who occupy them. For example, the personality type of those who work in a school environment (such as teachers) is primarily social, which differs from that of office workers (such as file clerks) who would typically be high on the conventional personality type. Thus, environmental types are assessed by surveying the occupants of that particular work setting.

Four basic assumptions constitute the heart of the theory (Holland, 1985a). The first is that most people can be categorized as being primarily one of the six types. In short, each type has a characteristic repertoire of attitudes and skills for coping with environmental problems and tasks. The second assumption is that environments can also be identified as one of the six types. Each environment is dominated by a given type of personality - that is, a large percentage of the population in a particular environment will resemble a certain type. The common phrase, "birds of a feather will flock together" is another way of describing this phenomenon.

The third assumption is that people search for environments that will let them exercise their attitudes and values, and take on suitable problems and roles. For instance, people who are primarily social types seek out

social environments, and so forth. To a lesser extent, environments also attract people through friendships and recruiting practices.

The fourth assumption holds that behaviour is determined by an interaction between personality and environment. Therefore, if a person's personality pattern and the pattern of his or her work environment is known, predictions as to the outcome of such a pairing can be made. Such predictions may include choice of vocation, job changes, vocational achievement, personal competence, and educational and social behavior. According to Holland's theory, an appropriate match between personality and work environment will result in productive work behavior, whereas a mismatch is likely to result in less favorable outcomes.

These four key assumptions are supplemented by several secondary assumptions that can be applied to both persons and environments. The first secondary assumption is consistency, which refers to the idea that certain groupings of personality types are more closely related than others. For example, artistic and social types have more in common than investigative and enterprising types. The degree of consistency between the various types is demonstrated in Figure 1, a hexagonal model comprised of correlations between the different personality types (Holland, 1985b, p. 39). The extent of consistency within an individual can also be examined. For instance, a

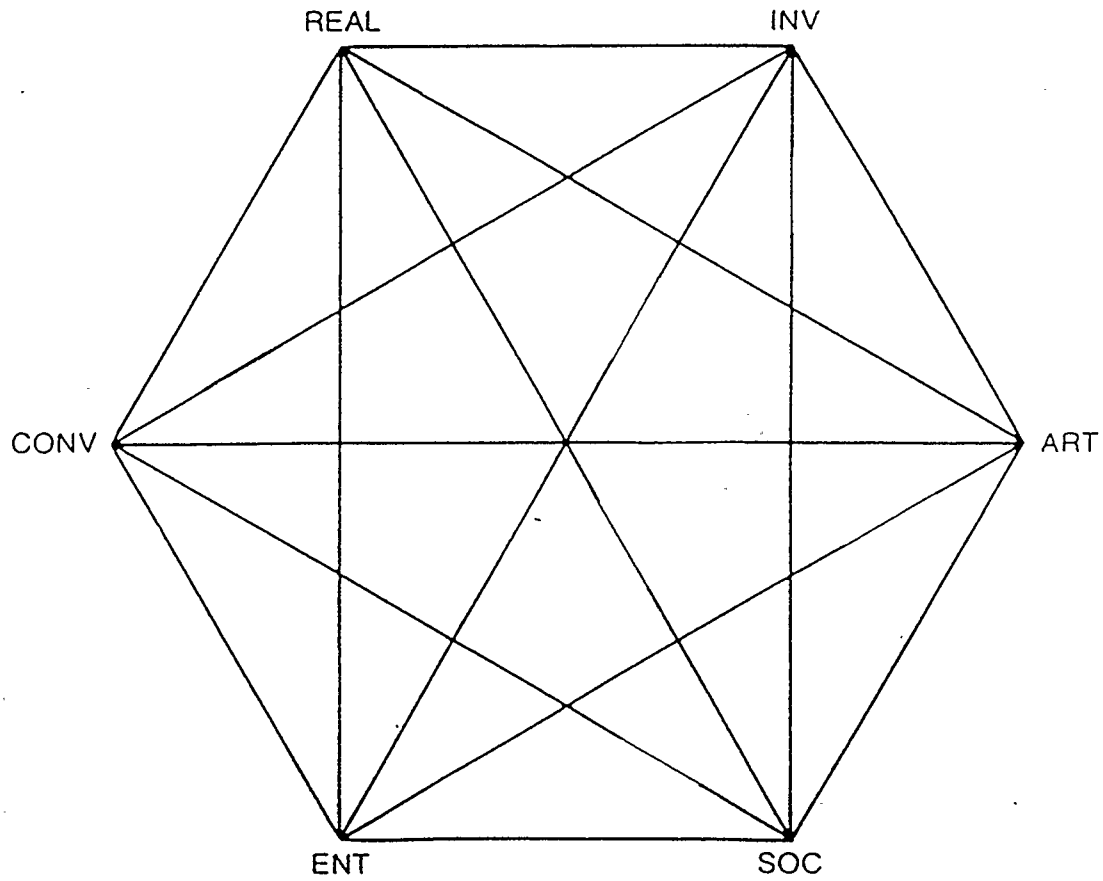

Figure 1 - A Hexagonal Model for Interpreting Degrees of Consistency Between Personality Types (Adapted from Holland, 1985b)

realistic individual who also expresses interest in investigative and conventional activities (RIC) is considered to be more consistent than the realistic individual who expresses a preference for enterprising and social activities (RES). Thus, the closer the types are on the hexagon, the more consistent or stable they are likely to be.

Another secondary assumption, differentiation, contends that some persons or environments are pure - that is, they show a higher resemblance to a single type and a lesser resemblance to other types. Other persons or environments show a relatively equal resemblance to several types. Such a person would be considered undifferentiated or poorly defined. The next assumption, congruence, asserts that certain types require certain environments. For instance, realistic types flourish in realistic environments because such an environment provides the opportunities and rewards a realistic type needs. Incongruence occurs, for example, when a realistic individual works or lives in a social environment.

Holland has applied his vocational theory through the Self-Directed Search (SDS), a self-administered, self-scored and self-interpreted vocational counselling tool (Holland, 1985b). The inventory begins with the individual listing his/her occupational daydreams or aspirations. The individual is then asked to indicate from a variety of choices which activities interest him/her, tasks at which

he/she is competent, occupations that appeal to him/her and finally, to make self-estimates of his/her ability in several different areas. The result is a three-letter code indicating the three personality and/or environmental types the individual resembles most, listed in order of priority. For instance, a code of ESC would indicate that the person is primarily enterprising, to a lesser extent social and to an even lesser extent conventional. However, it may be the case that the types are of equal representation and that the individual is as social as they are conventional for instance.

As a supplement to the Self-Directed Search (SDS) instrument, Holland has created a booklet entitled the Occupations Finder (Holland, 1985b), which contains lists of occupations to match the three-letter codes. The jobs listed under each three-letter code are ordered in terms of the approximate length of schooling required to enter the particular occupations. Therefore, upon determining their three-letter code with the SDS, the individual can then find occupations appropriate for their personality type with an indication of the approximate amount of education necessary for those occupations. They are also able to compare the three-letter code of their initial occupational daydreams with their personality code. Thus, an indication as to the degree of congruence between their personality type and career aspiration can be obtained.

The degree of congruence exhibited by rural, gifted students over the high school years is one area of interest raised by Holland's theory in relation to the present study. Is it the case that the level of congruence increases throughout this period, or as students near their senior year does the degree of congruence drop as a result of indecision? In addition, does a relationship exist between the degree of congruence and the number of job choices a student reports? One might assume that higher congruence will lead to fewer job choices since the individual would seem to be more aware of the occupations they are best suited for and therefore be more specific. Finally, do gifted males and females in a rural setting differ in respect to the congruence they exhibit, or are they similar in this regard?

The other major contributor to vocational psychology theory is Donald Super (1953), considered by many to be the authority in the field. His orientation is a developmental one rather than the trait and factor approach or personality theory favored by Holland. Whereas Holland's interest has been primarily in the assessment of personalities and occupations for more effective matching, Super has examined the nature, sequence, and determinants of career choices over the life span. Thus, one may envision Holland's theory as being encompassed by Super's, since career choices are made throughout the life span.

Super began his research in the field of career development in the 1940's, but did not make his first formal theoretical statement until a decade later. Theories by Ginzberg and his colleagues (1951) were proposed which Super considered to have serious shortcomings, including the failure to take into account existing information regarding vocational development. As a result, Super proceeded to formulate a theory drawing from three psychological areas: differential psychology, self-concept theory and developmental psychology.

The differential psychology portion of Super's theory is quite similar to that subscribed by Holland - that people are likely to be more satisfied if they are in an occupation that requires a pattern of interests and abilities closely corresponding to their own characteristics. In terms of self-concept theory, Super proposes that vocational self-concepts develop on the basis of children's observations of and identifications with adults involved in work. The third influence, developmental psychology, led Super to propose several distinct stages in career development including: the growth stage from birth to around age 14, the exploratory stage occurring between the ages of 15 and 25, the maintenance stage covering the next 40 years, and the final stage, decline, from about age 65 onwards.

Super (1963) went further in proposing that the exploratory and maintenance stages could be broken down

into substages. He felt that crystallization of a vocational preference typically occurs during the 14-to-18-year age range. At that time, individuals are said to formulate ideas about work appropriate for themselves that will help mediate tentative vocational choice by means of relevant educational decisions. The next substage, specification, is the point at which the individual is required to narrow a general career decision into a specific one and take the necessary steps to implement the decision. This development was thought to be most prominent during the 18-to-21-year age range.

The implementation substage, said to occur between the ages of 21 and 24, follows specification and involves the individual completing some training and entering relevant employment. The necessary attitudes and behaviors for this task call for the individual's recognition of the need to plan for the implementation of a preference and execution of this plan. Stabilization of a vocation is the fourth substage and occurs within the maintenance stage between the ages of 25 and 35. This task represents behavior which reflects settling down within a field of work and the use of one's talents in such a way as to demonstrate the appropriateness of the career decisions previously made. The final substage Super mentions is the consolidation of status and advancement, which occurs most clearly during the late 30's and mid 40's. Here, the worker becomes

firmly established, developing skills and seniority to achieve a secure and comfortable position.

Of particular concern to the present study are Super's crystallization and specification substages of vocational development. By considering the theories of both Super and Holland, the question can be raised as to whether or not relative congruence between an individual's personality and career choice is likely to occur in the crystallization substage of vocational development. Alternatively, congruence may occur beyond the high school years within Super's specification substage, or perhaps later still in the implementation substage. Since gifted students are the focus of this study, is it the case that they achieve relatively high congruence between their personality type and career choice at an earlier stage than Super would predict, thereby indicating advanced vocational development? Or, is their vocational decision-making adversely affected by the demands of their extraordinary abilities and delayed to a certain extent? Thus, one may ask if academic giftedness is a help or a hindrance in terms of vocational development. In addition, do gender differences exist in this regard thereby providing some insight into the career development of women?

Theories of Career Maturity

Not surprisingly, Donald Super's work has also been very influential in terms of establishing concepts of career maturity. Much of his theorizing is the result of a large scale longitudinal investigation entitled the Career Pattern Study (1957) which he undertook with a number of colleagues. Initiated in 1951, the study involved some 200 boys in the 9th-grade during 1951 and 1952. A comprehensive collection of their characteristics and experiences was made at that time, then again as they finished high school and for a third time when they were approximately 25 years of age. In addition, the boys' parents were interviewed and an analysis was made of employment and occupational opportunities in the area.

As a result of the study, five dimensions of vocational maturity were identified. They included orientation to vocational choice, information and planning about preferred occupation, consistency of vocational preferences, crystallization of traits, and wisdom of vocational preferences which reflected the agreement between ability and preferences. An individual's vocational or career maturity was defined by his/her standing along these dimensions in relation to either chronological age and expected life stage or the behavior of others coping with the same developmental tasks (Super,

Crites, Hummel, Moser, Overstreet & Warnath, 1957). As an aside, several of Holland's assumptions appear to focus on similar qualities.

One of Super's colleagues, John Crites, took a particular interest in these variables and the possibility of others associated with career maturity. In fact, as Westbrook (1983) states, "the words vocational or career maturity are associated with Donald E. Super and his associates, particularly John O. Crites" (p. 263). Following his work on the Career Pattern Study, Crites (1978) proposed a hierarchical model. The model was extrapolated from a schema suggested by Vernon (1950) for the structure of intelligence, in which the factorial structure of the correlations among variables is assumed to be oblique rather than orthogonal. An adaptation of this model is presented in Figure 2. The Career Choice Competencies and Career Choice Attitudes group factors in the model were derived from several of Super's original dimensions including orientation to vocational choice, information and planning, and certain components of the crystallization of traits dimension, as well as some concepts proposed by other theorists.

Of particular interest to this study is the group of factors entitled Career Choice Attitudes which are measured by Crites' (1978), Career Maturity Inventory - Attitude Scale: Counseling Form B-1 (CMI-AT). This group

of factors is designed to evaluate the career choice process or how well prepared the individual is for making

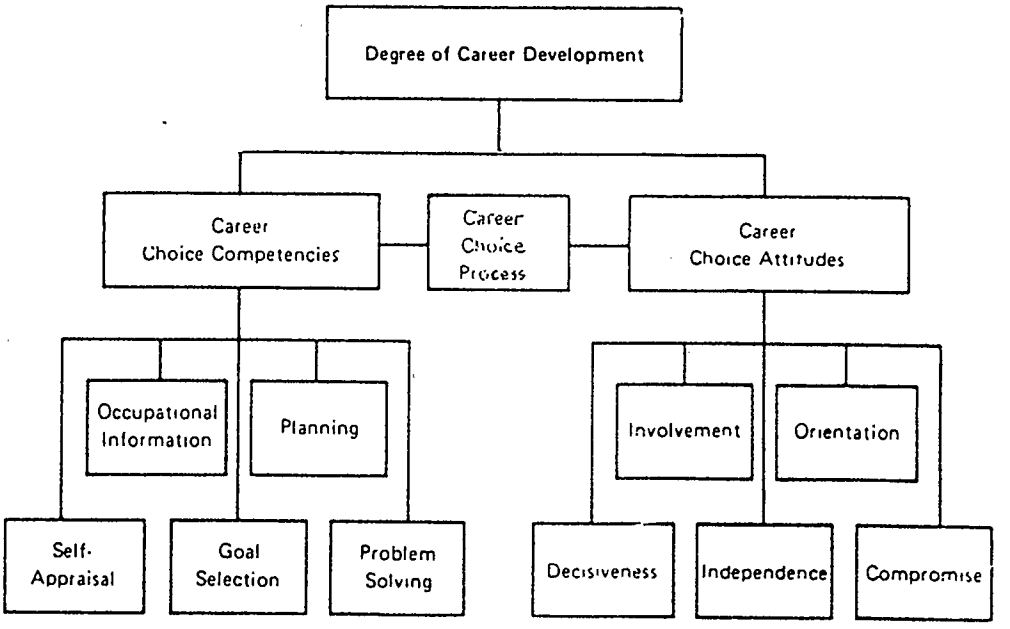

Figure 2 - A Model of Career Maturity in Adolescence (Adapted from Crites, 1978)

a career decision. Whereas career choice content refers to the occupational choice made by the individual, the CMI-AT variables including career decisiveness and independence are directed at the processes involved in arriving at an occupational choice. Thus, the career decision-making process or career maturity of academically gifted, rural students can be examined in several different respects with the use of this instrument.

Specifically, the present study is interested in examining whether or not significant increases in career maturity, including decisiveness and independence, are exhibited over the high school years. Also of interest is the possibility of relationships existing between Holland's measure of congruence and the career maturity constructs. Presumably, the greater the congruence between a student's personality and their career aspiration, the greater their career maturity, decisiveness and independence. Gender differences in each of these respects will also be examined in hopes of finding specific aspects of the career decision-making process which differentiate between the sexes.

Career Decision-Making Patterns of the Gifted

Perhaps the best known body of findings regarding gifted individuals and their career pursuits are the

monumental studies of Terman and Oden (1947). In a longitudinal study initiated in 1925 and covering a period of more than 35 years, Terman and his associates made an intensive study of the lives of more than six hundred gifted youngsters ranging in age from two to thirteen years. They also complied a comparable body of relevant data for a control group of approximately six hundred youngsters. In following-up these youngsters, they found that the gifted students showed a greater preference for professional, semiprofessional, artistic, public service, and agricultural occupations than the control group, who showed a greater preference for mechanical, clerical, and athletic occupations, and occupations related to transportation.

While the limitations of this study have been noted (i.e., professional accomplishments were only measured among the men), the findings must be recognized as significant in the field of gifted development. As Terman himself remarked, "I take some pride in the fact that not one of the major conclusions we drew in the early 1920's regarding the traits that are typical of gifted children has been overthrown in the three decades since then" (Terman, 1954, p. 223). And while a great deal of research has resulted from Terman's work, much has been done to refine his conclusions and provide greater understanding of the processes involved specifically with career development of the gifted.

One generalization that can safely be made about gifted and talented individuals is that they differ from each other in more ways than they resemble each other. Recently, gifted subpopulations have been identified in terms of their personal characteristics and the types of career development problems they typically possess.

Marshall (1981), as a result of her work as a guidance counsellor and involvement in career education, has identified two distinct career decision-making patterns among the gifted and talented. The more common pattern is one of indecision, displayed by students who possess a multiplicity of intense interests and high aptitudes. The second pattern, called early emerging, refers to students who decide upon a career preference at an early age, make commitments toward its pursuit long before leaving high school, and appear to follow this singular route throughout their entire career development.

The former pattern, commonly referred to as multipotentiality, seems to be somewhat more prevalent than the early emerger phenomenon according to Hoyt and Hebeler (1974). Sanborn and Wasson (1966) attest that making a career choice is often a difficult process for young people who possess many interests and competencies. Although many of us would consider this to be a desirable position, for the gifted child, the expectations of parents, teachers, friends and society in general are oftentimes overwhelming. Typically, gifted students try to

succeed at everything and their energy becomes so diffused that they are less likely to perform to their potential in any one area (Blackburn & Erickson, 1986). Multipotentiality would appear, then, to be a mixed blessing.

The other career decision-making pattern generally seen amongst gifted adolescents is that of the early emerger, and although less prevalent, it can be as equally problematic as multipotentiality. Early emergers are frequently found in the highest strata of the academically gifted population (Roper & Berry, 1986). Their singular pursuits are most often found in one of the following areas: the physical sciences, mathematics, and music (Marshall, 1981). Oftentimes, they are directed primarily towards investigative pursuits which demand intense independent study, exploration and, in the case of music, practice. Consequently, they spend a great deal of time working alone in their interest area to the exclusion of others and as a result they tend to become social isolates (Bloom, 1985).

It is more than just the nature of early emergers' interests that create isolation and inhibit their social development. It can also be seen as a result of their rapid cognitive development which may leave them feeling different and uncomfortable around their peers. Subsequently, they tend to identify more closely with the adult world (Super, 1964), but they are too young to be

accepted within that social group leaving them with nowhere to turn for close interpersonal relationships. In the end, they are in jeopardy of being left with a serious identity crisis.

In terms of career counselling strategies suggested for use with multipotential and early emerger students, they each require very different approaches. Oftentimes, multipotential students are told they can do anything they want, but this simply contributes to their lack of focus and may lead to a neverending search for the perfect career. Instead of trying to determine a solitary career choice, the best solution may be to simply identify a general career field along with various outlets for expressions of other interests (Perrone & Van Den Heuvel, 1981).

For early emergers, the problem of career choice does not exist and therefore, involving them in the career exploration process is likely to be a struggle. It is important to encourage them to explore fields outside their primary focus. This may also be difficult, though, since they may exhibit a lack of self-confidence or fear of failure in these areas of unfamiliarity. Perhaps the best method of having them develop varied skills and interests is by convincing them that other talents, such as writing and communication skills, will enhance effective functioning in their main area of interest (Roper & Berry, 1986).

Gender Differences in Career Decision-Making Patterns

In the past, a great deal of the literature focusing on occupational aspirations has looked solely at males since women were not considered to comprise a large enough proportion of the work force. With the advent of the women's movement in the 1960's, however, much has changed in our society with womens' involvement in the work force being perhaps the most dramatic. Consequently, literature examining occupational aspirations that does not include women is now the exception and no longer the rule. It is important to realize, when considering research in this area, that the changes we have seen of late are still occurring and thus, our society continues to be in a state of transition. As Osipow (1983) states, "... so much social change is occurring in the area of sex and vocation that any theoretical proposal made now is likely to be premature, as would be any generalization about women's career development" (p. 271). However, by examining these processes now, we may be better able to predict what will happen in the future and thereby determine the directions which career counselling should take.

Some studies have looked at the occupational and/or educational aspirations of male and female students at a single point in time. Usually, these observations are made at stages of transition such as just before entering

junior or senior high, or during the students' last year of high school. The reason for conducting investigations at the two earlier stages is to determine where in the career decision-making process the students are and whether career counselling is suitable or not at that time. When looking at senior high school students in their final year, the research is directed primarily at identifying shifts in occupational segregation and how male and female aspirations have changed as a result of changing norms and values.

One such study, performed by Fottler and Bain (1980) focused on the occupational aspirations of a sample of high school seniors in order to provide a comparative analysis of male and female aspirations. The subjects were drawn from Alabama schools and were a representative sample of high school seniors in that state. The students were asked "What occupation are you now most interested in?", and their responses were divided into one of the following eight categories of occupations : professional and technical, manager, sales, clerical, crafts, operative, service worker, or laborer. Although almost twice as many males (5.6%) as females (2.8%) aspired to managerial positions, the data did not indicate female occupational aspirations to be lower than those of the males - merely different. Females aspired to professional and technical occupations slightly more than males thus giving them equal representation in the two highest

occupational categories. In the lower level occupational categories, segregation of the sexes was much more clearly delineated with females aspiring to clerical and service positions, and males aspiring to be craftsmen, operatives, or laborers. The various reasons given for this gender difference relating to women included: the cultural values of society and the family, feminine role perceptions, the potential impact of a demanding career on family life, role conflict and lack of role models, discouragement from high school guidance counsellors, lack of self-confidence, and lastly, Horner's "fear of success" (1972).

Yet another reason is one referred to as the "Cinderella Effect" (Dowling, 1981). Under this scenerio, males are said to become independent, while females are taught that if they wait long enough something external will transform their lives, and that they will be relieved of the responsibility of planning for themselves. This hypothesis predicts that females are less likely than males to report an educational or vocational plan, or seek occupational information. While some of these claims are spuriously supported by empirical findings, the theory was originally generated simply as a result of a series of interviews with women conducted by Collette Dowling.

An interesting study by Heilman (1979) examined high school students' occupational interests as a function of projected sex ratios in male-dominated occupations. One hundred and forty-four male and female high school seniors

in the New York City area participated, all of whom had been accepted for admission to college. They were led to believe that the proportion of women in various occupations would be either 10% (token), 30% (minority), or 50% (equal) in 15 years. As predicted, projections of more-balanced sex ratios encouraged greater occupational interest among women. Interestingly, a balanced sex ratio was shown to reduce the degree of occupational interest expressed by men. These findings support the notion that the gender composition of an occupation influences the degree to which women consider it a viable career choice. Thus, as more women enter the work force and provide role models for their younger counterparts in male-dominated occupations, we are more likely to see equalization of the gender composition in various occupations.

Another study looking at occupational stereotypes and their influence was carried out by Hollander and Parker (1972). They obtained the one most and least preferred occupation from 54 high school sophomores in an urban Oklahoma area as well as the students' self-descriptions, and compared them using Holland's (1985a) six types of orientations and/or environmental categories. The results supported certain aspects of Holland's theory but more importantly, suggested that occupational choices made by adolescents are based in part on the degree of positive relationship between their self-description and the various occupational stereotypes that they hold.

During the 1970's, the Virginia State Department of Education conducted three statewide surveys (1970, 1973 and 1976) in an attempt to identify whether or not societal changes were having an effect on the career aspirations of high school seniors. Garrison (1979) looked at aspirations of the approximately 60,000 Virginia students involved for each of the years 1970, 1973 and 1976. The students' aspirations were classified into one of seven occupational categories listed in order of prestige: high staus professional, middle status professional, administrative, clerical or sales, skilled manual, operative, and unskilled. In 1970, 35.7% of the males aspired to the highest category while only 9.9% of the females did so. By 1976, the male predominance in that category had decreased markedly with the percentage of males aspiring down to 31.4% and that of females up to 17.2%. So, although males aspired to the high status professional category at a greater rate than females, this disparity was rapidly diminishing. In addition, the percentage of women aspiring to the top two occupational categories, caught and overtook that of men between 1970 and 1976, again demonstrating the increases seen in female aspirations over that time period.

In a study conducted on a slightly smaller scale, Olive (1973) examined the social class status of male and female adolescents' vocational preferences in the New Jersey area. All of the 433 high school students participating

were asked to choose any occupation they believed they might "like to enter". The preferences were then rated on a socioeconomic status (SES) scale and it was found that as a group, the females chose significantly higher social-class status occupations than did the comparable group of males. The female students, however, tended to aspire not to the most prestigious positions (e.g., physican, dentist, upper levels of administration), but rather the group of professions just below the top-echelon positions such as social worker, teacher, and secretary, which tend to be traditionally female-oriented. Thus, once again, female aspirations are well represented in the upper ranges of prestige positions but not at the very highest levels.

An area of investigation closely related to occupational aspirations of students is the educational goals which they set for themselves. In fact, educational background is tantamount in dictating the types of occupations which are even possible. For that reason, Anderson's (1980) study of educational goals of male and female adolescents deserves mention. The primary focus was on determining the influence of four SES indicators (father's occupational prestige, father's education, family income and mother's education, and parental aspirations and expectations) on the goals of the graduating high school seniors involved. It was found that for males, the father's education was the only variable

demonstrating a significant effect. Similarly, only the mother's education had a significant effect on female goals. Thus, the extent of a parent's education may help determine the educational goals of the same-sex child, which will consequently play a role in which occupations that child aspires to.

A specific concern in regard to the educational goals of today's youth is the lack of enrollment in mathematics demonstrated by females. The implications of this development are far-reaching when one considers the range of occupations which require a mathematical background. By avoiding math courses, females automatically eliminate themselves from a considerable portion of occupations which might otherwise be available to them. As Betz and Fitzgerald (1987) state, "Given the importance of math background to career options... females' tendency to avoid math coursework becomes one of the most serious barriers to their career development" (p. 105).

Pedro, Wolleat and Fennema (1980) looked at gender differences in the mathematics plans of 9th- and 10th-grade high school students from three rural schools in the U.S. Midwest. They were asked to report the amount of mathematics they planned to study while in high school and after high school, the occupation they would like to be in when they reached age 25, and finally the amount of education they planned to obtain after high school. It was found that female high school students plan to study less

mathematics than their male counterparts, both in and after high school. However, those females whose expressed interests required a mathematics background did plan to study similar amounts of mathematics as their male counterparts both during and after high school.

A further examination of the occupational aspirations of the students by Pedro et al., (1980) revealed that the females tended to select the stereotypical female career fields - those that generally require little mathematics. While this may not be detrimental to them obtaining the initial occupation they seek, it does tend to limit their options should they change their occupational plans at a later date. This lack of mathematical background also helps to explain why women are underrepresented in the highest prestige positions (i.e., mathematics, sciences, technical areas) which typically require a mathematical background. Thus, women may be unable to reach the highest level of their occupation as a result of educational decisions made at the high school level.

A prominent researcher in the area of gender differences in mathematics achievement, Eccles (1987) feels that educational and vocational decisions are more an issue of choice than avoidance. She argues that gender differences result from both differential expectation for success and differential values. In a study exploring the relations of expectancies and values to students' mathematics grades and enrollment intentions (Wigfield &

Eccles, 1989), it was found that students' previous mathematics grades predicted their expectancies for success more strongly than their mathematics values, but their valuing of mathematics had more impact on their intentions to keep taking mathematics. In addition, for senior high school students, both the interest and usefulness components of mathematics predicted their intentions, whereas for the junior high school students only the interest component predicted their mathematics enrollment. From these findings it was concluded that mathematics teachers must stress the value of mathematics to students as part of their regular mathematics instruction.

Career Decision-Making Patterns of Rural Students

Certain characteristics which appear to be common among virtually all rural communitiies include: the resident's belief in free public education, primacy of local control, sparse population, smallness of the school, inadequate school finances and poor economic status of the residents (Carmichael, 1982). As a result of these characteristics, rural schools tend to: 1) offer a more limited curriculum than metropolitan schools, 2) offer fewer libraries and fewer programs for special populations (i.e., gifted students), and 3) employ fewer support personnel (career counsellors, curriculum specialists, etc.). Therefore,

rural, gifted students are likely to be less well equipped in terms of making career decisions than their metropolitan counterparts.

Another factor to consider is that rural dwellers may be less well informed in regard to the various career opportunities open to them outside of their immediate environment. However, as Bryant, Shoemaker, Skipper and Snizek (1985) suggest, it may be the case that rural individuals are simply uninterested in such pursuits.

> The rural work context contrasts sharply from other work settings and perhaps, especially from that of the urban setting. For the rural dweller, there is a great deal of integration with the area and the community. This is particularly true in regard to family, kinship, neighbours, and the community institutions such as the church. This identification and integration with community impinges on work in a number of ways. There is a reluctance to leave the community, and when forced to leave, such as going away for education, the rural individual is generally anxious to return to the area. This makes for a stable work force, sometimes for generations. Individuals may follow their parents, or even their grandparents into jobs in the mills, mines, and plants because of family tradition and habituation. Geographical stability becomes more important than

opportunity for social mobility (pp. 3-4).

An examination of the literature reveals a paucity of studies that investigate the relationships among important variables in the career development of rural youth, and virtually no studies examining rural, gifted students. With that in mind, a review of available studies regarding rural students and career development will follow.

Lee (1984) investigated the relationship among selected psychosocial variables (self-concept, perceived parental influence, and socioeconomic status) and attitudes toward career choice processes of rural high school students. The sample of 520 10th-grade students in the Southeastern portion of the U.S. consisted of male and female Blacks, Whites and Native Americans. It was found that self-concept had a negative relationship with career choice attitudes for Native American students but a positive one for Black and White students, thereby indicating the possibility of ethnic group differences in views about self among rural youth. There were no significant gender differences though. It was suggested that further research be conducted with larger rural samples and that self-concept be examined further as a career development variable, or more specifically, constructs such as self-efficacy or self-confidence.

Hales and Fenner (1972) examined the work values of 5th, 8th and 11th grade students in a small rural school

district in Ohio. The results showed that at each of the different grade levels, students gave priority to work that is steady and dependable, pays well, permits them to utilize their skills and interests, and benefits other people. These variables indicated both extrinsic valuing (security and money) and intrinsic valuing (self-realization and altruism). It was concluded from the study that as the students became older they viewed their chances for entering highly respected occupations with increasing doubt. This observation may lead to the finding that career aspirations decline as rural students proceed through high school.

Thompson (1966) conducted an investigation to explore Super's belief that the 9th-grader is in the vocational exploration stage. This hypothesis was supported by the finding that freshman students were very definite about what was important to them in a vocation and some additional observations were made with respect to the rural students involved. The sample consisted of 2,287 9th-graders in California, of whom 1,790 were retested the following year. In both instances, rural students tended to place higher importance on job security than their urban counterparts. In addition, students interested in power by being the boss tended to be from rural areas, had received low grades, and seldom attended church. Although the latter findings are somewhat ambiguous when considered in terms of the present study, the importance of job

security for rural students seems to be a common thread. The way in which job security is related to aspirational level is as yet unknown, but this relationship may possibly have implications with respect to the amount of risk-taking exhibited by rural students in choosing a career.

In another examination of the data collected on approximately 60,000 high school seniors by the Virginia State Department of Education, Garrison (1979) looked at relationships between the dependent variable (occupational aspirations) and a variety of factors including residential location. For each of the three surveys (1970, 1973 and 1976) it was found that metropolitan residents were more likely to choose high status professional careers than nonmetropolitan residents. Whether or not there is an association between job security and lower status careers in the minds of rural or nonmetropolitan residents is uncertain, but it may be one reason for the apparent relationship.

As indicated earlier, empirical research on career development of rural students is scarce, but of that which does exist, a large proportion is directed at gender differences, or specifically at females, as a result of the lack of theoretical background relating to the career development of women.

One study by Dunne, Elliott and Carlsen (1981) examined gender differences in the educational and occupational

aspirations of rural youth from five diverse regions across the U.S. The sample consisted of 926 rural girls and 861 rural boys in grades 10, 11 and 12. Surprisingly, it was found that both the occupational and educational aspirations of the female students were significantly higher than those of the males. In terms of education, 69% of the female respondants planned to continue their schooling beyond high school, compared to only 52% of their male counterparts. With respect to occupations, nearly half (49%) of the women in the sample aspired to occupations rated as high on the Duncan Socioeconomic Index, in contrast to only 30% of the men. Although these findings conflict somewhat with those of Fottler and Bain (1980) reported earlier, the authors felt that the results reflected a societal change over the last several decades. Their conclusions were further supported by the fact that the young women also tended to choose a much wider range of occupations, including those outside the realm of female-stereotyped jobs, this being an observation that had not been made previously.

In an investigation aimed primarily at looking into the vocational choices of junior and senior high school girls from a largely rural setting, Fortner (1970) found a combination of predictors (IQ, SES, and Family Wage Earners' Occupation) which showed a relationship to the stated occupational preferences of the girls. Furthermore, she compared the levels of those occupational preferences

against those of boys from an earlier study (Stockin, 1961, as cited by Fortner, 1970) and found that the girls tended to choose occupations in the highest level more than boys.

With respect to career maturity, Pedro (1982) looked at junior high school girls in a community located approximately 35 miles from a metropolitan area. This study is of particular interest since the sample was drawn from an area similar to that used in the present study. With career planning involvement as the dependent variable, the results indicated that achievement orientation was the highest predictive variable. In addition, those girls who had higher levels of occupational information were also those who exhibited greater achievement orientation. The implications for rural students is that a lack of exposure to occupational information, as is typical in rural settings (i.e., fewer career counsellors than in urban settings), may limit their career planning involvement and subsequent career development. This may help to explain the earlier findings reported by Garrison (1979) that nonmetropolitan students exhibited lower occupational aspirations than their metropolitan counterparts.

A very recent investigation by Kelly and Colangelo (1990) comes close to paralleling the objectives of the present study by examining the effects of academic ability (giftedness) and gender on the career maturity of rural

junior high school students using the CMI-AT. A total of 265 students (grades 7-9) from a U.S. midwestern state were classified in terms of three different groupings: special learning needs (SLN) students, gifted students (GS) and students not identified as gifted (NI). It was hypothesized that the GS students would have the highest career maturity, whereas the SLN students would have the lowest. In addition, girls were expected to score higher in career maturity than boys except in the GS group, where male and female scores were both expected to be high.

Kelly and Colangelo found the GS students to have the highest career maturity, followed by the NI students, with the SLN students scoring the lowest on career maturity. No gender differences were found in respect to career maturity for any of the three groups, however. Kelly and Colangelo concluded that gifted female students are as ready to participate in career development activities as the gifted males and that both groups are ready for involvement in career guidance activities as early as the elementary school level. They suggested that further research is necessary in respect to older age groups such as high school juniors and seniors and that other career development variables including career aspiration level be examined. Coincidently, both of these suggestions were undertaken by the present study.

In summary, the literature suggests a number of interesting developments in the career decision-making

patterns of adolescents including an increase in aspirational levels exhibited by females over the last two decades. For the rural population, gender differences in favour of females appear to be prevalent and job security is seen as a highly valued quality by both genders. The latter finding may be related to the idea that as rural students grow older, they view their chances for entering highly respected occupations with increasing doubt. Thus, it may be the case that the aspirational level of rural students declines as they proceed through high school.

Whether or not these and other career decision-making patterns apply to a rural, gifted population is the focus of the present study. The rationale for looking at this particular group of students is their tremendous potential, which is oftentimes overlooked both in practice and in empirical research as is evidenced by large gaps in the literature. In addition, this study will explore several other aspects of career development of the gifted in greater detail. Specifically, the "multipotential" and "early emerger" patterns of career decision-making will be investigated. The measures utilized will include the degree of congruence between each student's personality and career aspiration, career maturity including decisiveness and independence, number of jobs aspired to, and aspirational levels exhibited during the high school years.

Hypotheses

Hypothesis I:

Ho: There will be no significant gender effect for the set of five dependent variables which include: degree of congruence between personality and career aspiration, aspirational level, career maturity, decisiveness, and independence.

Ha: There will be a significant gender effect for the set of five dependent variables which include: degree of congruence between personality and career aspiration, aspirational level, career maturity, decisiveness, and independence.

Hypothesis II:

Ho: There will be no significant grade level effect for the set of five dependent variables which include: degree of congruence between personality and career aspiration, aspirational level, career maturity, decisiveness, and independence.

Ha: There will be a significant grade level effect for the set of five dependent variables which include: degree of congruence between personality and career aspiration, aspirational level, career maturity, decisiveness, and independence.

Hypothesis III:

Ho: There will be no significant interaction between gender and grade level on the set of five dependent variables which include: degree of congruence between personality and career aspiration, aspirational level, career maturity, decisiveness, and independence.

Ha: There will be a significant interaction between gender and grade level on the set of five dependent variables which include: degree of congruence between personality and career aspiration, aspirational level, career maturity, decisiveness, and independence.

Hypothesis IV:

Ho: There will be no significant relationships between degree of congruence and career maturity, decisiveness or independence.

Ha: There will be significant relationships between degree of congruence and career maturity, decisiveness, and independence.

Hypothesis V:

Ho: There will be no significant relationship between number of job choices and degree of congruence, career maturity, decisiveness or independence.

Ha: There will be significant relationships between number of jobs choices and degree of congruence, career maturity, decisiveness and independence.

Chapter Three

Methodology

Sample

The subjects in the present study were students in grades 9 through 12 attending schools within the Foothills School Division No. 38, Alberta, during the 1989/90 school year. The Foothills School Division operates fifteen centralized schools in a geographic area approximately 45 kilometres south of Calgary. The largest town within the division has a population of about 6,000 people, with the remaining eight settlements varying in size from 216 to 5,300. The total enrolment for the school division as of September 11, 1989 was 5,465 students. The main industries in the area include gas and oil, agriculture and ranching, as well as a recently constructed meat packing plant. The communities are generally of middle class status.

Students were selected to participate in the study on the basis of their performance on a standardized achievement test. Those students obtaining either a reading, language or mathematics component score at or above the 95th national percentile on their latest administration of the Canadian Achievement Test (CAT) were chosen. The Foothills School Division administers the CAT

to students in grades 4, 7 and 9. Therefore, subjects presently in grades 9 and 10 were selected on the basis of their achievement while in grade 7, whereas the selection of grade 11 and 12 subjects was based on their test scores from grade 9.

All the students identified as academically gifted on the above criteria were given an information letter and consent form. Of the 146 students fulfilling the criterion for being academically gifted, 103 agreed to participate in the study. Of those 103 students, 30 failed to return the test materials, thereby resulting in a final sample of 73 students. For a description of the subject distribution see Table 1. The gender and grade level proportions of both the participant and nonparticipant groups failed to differ significantly from the original 146 students identified, based on Chi Square.

Instruments

The instruments used within the present study included:

a) the Self-Directed Search

b) the Career Maturity Inventory

c) the Blishen Scale, and

d) the Canandian Achievement Test

Table 1

Distribution of Subjects

		Grade Level				
		9	10	11	12	Total
Sex	Male	6	4	10	6	26
	Female	13	6	14	14	47
	Total	19	10	24	20	73

		Grade Level		
		9/10	11/12	Total
Sex	Male	10	16	26
	Female	19	28	47
	Total	29	44	73

Self-Directed Search

The Self-Directed Search (SDS) was developed by John Holland (1985b) and is described as a self-administered, self-scored, and self-interpreted vocational counselling tool. The SDS consists of an assessment booklet and an occupational classification booklet and is designed to simulate what a person and a vocational counsellor might do together in several sessions. To use the SDS, a person fills out the assessment booklet by listing occupational aspirations (up to 8 self-identified occupations can be listed), indicating preferred activities (liked or disliked), reporting competencies (activities performed well or poorly) and rating various abilities (on a 7-point scale). The responses are then scored and a three-letter occupational code is rendered. The code can be used to locate matching occupations in the occupational booklet or "Occupations Finder".

Since its initial publication in 1971, the SDS has undergone several revisions designed to improve the practicality of the instrument as well as increase its empirical value. Changes have included format modifications, simplification of the scoring, increasing the validity through item substitution, reducing overlap among the scales and omitting problematic items. The Occupations Finder has also been expanded from

approximately 500 occupations in 1977 to 1,100 occupations in 1985. Although clearly suitable for persons aged 15 and older, the reading level of the SDS is now estimated to be at a 7th- or 8th-grade level. Most people can complete the SDS in 40 to 50 minutes.

The initial section of the SDS, entitled the Daydreams section, elicits a person's past and current vocational aspirations. These responses are not used in formulating the person's three-letter occupational code or summary code, but they do offer useful test information. The present study was interested in the most current aspiration or job choice elicited by the individual. This definition of career aspiration should not be confused with the actual job or occupation that the individual eventually performs, but is simply the occupation which is considered. This is not to say, however, that the two will necessarily be contrary. In fact, an abundance of studies (Holland, 1968; Holland & Lutz, 1968; McLaughlin & Tiedeman, 1974) have shown substantial evidence that a person's career aspiration as defined on the SDS tends to be as good a predictor of his/her eventual occupation as any other psychological device.

The relationship between the code for the career aspiration and the summary code was also of interest to the present study. Several studies have shown that the greater the similarity between the two codes, the greater the likelihood that the person will maintain that

aspiration (Holland & Gottfredson, 1975; Touchton & Magoon, 1977). Several methods are presently used in evaluating the degree of agreement or congruence between the codes. The method which has been determined to be the most superior, mathematically, is the Iachan Index (1984). It was this method, consequently, that was utilized within the present study to determine the degree of congruence between personality (or the summary code) and career aspiration.

In regard to the stability of the SDS and its summary code, the professional manual (Holland, 1985b) reports internal consistency reliability (alpha) coefficients ranging from .59 to .92 for the 1985 edition. The reliability coefficients for the three component scores, which produce the summary code, range from .84 to .92. The stability of the SDS was measured by administering it to a diverse sample of 818 students and working adults aged 14 to 74 (297 men and 521 women). A standard 5-day retest interval was attempted but due to the diverse nature of the sample, retest intervals ranged from 1 to 15 days. Despite these methodological difficulties, the internal consistency of the SDS was improved over the previous 1977 edition.

The concurrent or predictive validity of the SDS summary codes are comparable with, or in excess, of those for other interest inventories (Dolliver, 1975; Hanson, Noeth & Prediger, 1977; Touchton & Magoon, 1977). The 1985

edition of the SDS demonstrates "hit rates" or the percentage of summary codes agreeing with one-letter aspirational or occupational codes, ranging from 48 to 64 percent. The hit rates for 14-18 year olds is 48% for both males and females, whereas for the 19-25 year age group, they are 59% for males and 61% for females.

Within the present study, the occupation listed as the most current job choice in the Daydreams sections of the SDS was considered as the person's career aspiration. A three-letter occupational code for that career aspiration was then obtained from the Occupations Finder. Using the Iachan Index, that code was compared to the SDS summary code of the individual, thereby resulting in a measure of degree of congruence between the individual's personality and their aspiration. The scores on this measure could range from 0 - 28.

Career Maturity Inventory - Attitude Scale

The Career Maturity Inventory (CMI) was developed by Crites (1978) to measure career choice "process" variables. It evolved from both the "trait and factor" and "psychodynamic" theories of career decision-making but is based primarily on contemporary career development theory. The Attitude Scale (CMI-AT) was designed to measure the level of career development an individual exhibits on various career choice attitudes including decisiveness,

involvement, independence, orientation and compromise. Two of these variables were of interest to the present study: decisiveness and independence. The decisiveness measure indicates the degree to which an individual is committed or definite about making a career choice. The independence measure indicates the extent to which an individual relies upon others in the choice of an occupation.

The CMI-AT has undergone several changes since its original inception. Subsequent research has involved larger samples from broader geographical distributions and several item changes. The present study utilized the 1978 Counseling Form B-1 of the Attitude Scale which consists of 75 true-false questions. The total Career Maturity score is based on responses to 50 items, whereas the decisiveness and independence subscales each consist of 10 items. Although more research needs to be done on the Counseling Form, 60 percent of the items are from the original Form A-1, and Crites therefore suggests that reliability and validity statistics from the original versions are conservatively applicable to the Counseling Form.

Recent analyses on the Counseling Form report internal consistency (KR-20) estimates of .67 for the decisiveness subscale and .71 for the independence subscale (Crites, 1978). Although Crites admits that these values would be low for aptitude or achievement tests, he suggests that they are desirable levels for a scale constructed by

rational (items making theoretical sense) and empirical (items differentiate among grades) methods. Test-retest reliability for the earlier Form A-1, was determined at r = .71 for 1,648 students in grades 6 through 12 tested and retested over a one year interval. Similarly, Crites (1978) posits that "an extremely high stability coefficient for the Attitude Scale over long periods would be contrary to the theoretical proposition that vocational behavior matures over time" (p. 12).

Content validity for the CMI-AT comes from two sources. First, logical support is furnished through the particular method of test construction. The content of the items was derived from the central concepts of career development theory and the wording of the items taken from actual instances of verbal vocational behavior. Secondly, empirical support is offered by Hall (1962) who found inter-rater reliability for the CMI-AT to be at least 80% and agreement between the judges and the student majority to be at the 74% level.

Criterion-related validity is provided by Bathory's (1967) finding that the Attitude Scale is correlated with the Occupational Aspiration Scale which measures realism of aspiration. In addition, Hollender (1964) found significant covariation of career attitude maturity with the variables consistency, decision and realism in career choice. Finally, Graves (1974) investigated certainty and committment among 300 college sophomores. He found that

those students who were more certain about their career choices, who expressed more commitment to obtaining their college degrees, and who changed their majors less often scored significantly higher on the CMI-AT.

In terms of construct validity, Crites (1978) has examined findings relevant to 1) response bias, 2) correlations with other variables, and 3) experimental manipulations of counselling and other didactic experiences. Several studies (e.g., Carek, 1965) show response bias to be a negligible source of extraneous score variance on the Attitude Scale. Various correlational studies (Bartlett, 1968; Crites & Semler, 1967; Enderlein, 1975; Maynard & Hansen, 1970) have indicated that the CMI-AT is related to variables which, theoretically, it should be related and unrelated to those it should not. Other experimental designs have also demonstrated construct validity by showing gains in career maturity on the CMI-AT following career education-type interventions (Asbury, 1968; Feldman & Marinelli, 1975; Randolph & Grantham, 1973).

Recent analyses were performed by Stowe (1985) to examine the convergent and discriminant validity of the five subscales on the CMI-AT Counseling Form B-1. An adaptation of the multitrait-multimethod matrix procedure was utilized. Ninety-seven 9th graders were given the CMI-AT and a short-answer test to assess the five subscales (decisiveness, involvement, independence, orientation and

compromise). Intercorrelations between the two measures provided strong evidence of convergent validity for the decisiveness, involvement and independence subscales and limited support for their discriminant validity. In addition, internal consistency (KR-20) reliability coefficients for each of the five subscales were found to be similar to those reported by Crites (1978).

Despite such evidence, the internal consistency (KR-20) of the CMI-AT decisiveness subscale (.67) remains questionable. Thus, a reliability analysis in regard to the 10-item decisiveness subscale was undertaken within the present study. This analysis was designed to assess whether or not omitting certain items would improve the internal consistency (KR-20) of this subscale in respect to a rural, gifted population.

The measures utilized within the present study from the CMI-AT included an overall career maturity score, a decisiveness score, and an independence score. The overall career maturity score was based on 50 true-false items. The decisiveness and independence scores were each based on 10 true-false items. All three measures were then converted to standard scores calculated for each grade level with a mean 50, a standard deviation of 10, and a range from 27 - 73. A high overall career maturity, for instance, would indicate greater knowledge and understanding of the variables involved in the career decision-making process.

Blishen Socioeconomic Index

The Blishen Scale (Blishen, Carroll & Moore, 1987) was used to rate the socioeconomic status (SES) of the current aspirations elicited by subjects on the SDS. As stated by Blishen and his collegues, "the present index is most applicable in situations where access to data is limited to occupational titles and where one desires a unidimensional contextual indicator which locates individuals in the Canadian occupational structure at a given point in time" (p. 473). Based on data from the 1981 Census of Canada and 514 job categories listed in the Canadian Classification and Dictionary of Occupations (CCDO), this particular index appeared to be the most appropriate for use within the present study.

The Blishen Scale, although calibrated to the Pineo-Porter (1967) prestige scores to provide continuity with previous socioeconomic indexes, is not a measure of occupational prestige, but rather a composite of the prevailing income and education levels in each occupation. Unlike other indexes which provide separate indexes for the male and female labour forces, the Blishen Scale uses gender-specific income medians, and pools them into a single interpolated value, taking into account the proportions of men and women in identical occupations. By doing so, men and women in identical occupations whose

incomes may be highly disparate are by definition equal in their socioeconomic status.

Within the present study, the most current job choice or career aspiration as listed in the Daydreams section of the SDS was rated on the Blishen Scale. This rating or socioeconomic score was utilized as a measure of aspirational level for each subject. For the 514 occupations listed on Blishen's index there is a mean socioeconomic score of 42.74, a standard deviation of 13.28, and a range from 17.81 (for a newspaper carrier) to 101.74 (for a dentist). Therefore, occupations with SES scores two standard deviations or more above the mean could be considered as the highest level jobs. Likewise, occupations with SES scores below the mean could be considered the lowest level jobs, with those in between seen as middle level occupations.

Canadian Achievement Test

The Canadian Achievement Test (CAT) is a standardized instrument normed on approximately 76,000 Canadian students from grade 1 through grade 12, drawn by stratified random sampling procedures from the national public and separate school populations. The CAT consists of several components including the areas of reading, spelling, language, mathematics and a reference skills test for use with higher grade levels. The items on the

test are based on the objectives stated in recent curriculum guides, textbooks and other instructional materials used by school systems in all parts of Canada.

The subject selection criteria for the present study required the students to obtain either a reading, language or mathematics component score at or above the 95th national percentile on their most recent administration of the CAT. These particular components were chosen since they each consist of at least two subtests (i.e., Reading - vocabulary & comprehension). A review of the literature indicated that selection criteria of the gifted in respect to achievement test scores ranged from scores at the 90th to the 97th percentile on national norms (Aldrich & Mills, 1989; Hagen, 1982; Hollinger, 1986).

Content validity was considered of paramount importance during the development of the CAT. The initial pool of items was provided by the California Achievement Test, a widely used test battery in the United States. A panel of reviewers from school systems across Canada added two new subtests to the CAT, changed the emphasis of others to Canadian requirements and created over a thousand new items to ensure the appropriateness of the items for Canadian students. Research was also conducted to identify any items that appeared to have racial bias and those items were subsequently eliminated or revised as necessary.

During item tryout and selection, a criterion biserial correlation of .30 for the test item response correlating with the total score was utilized. Reliability of the CAT is demonstrated by internal consistency (KR-20) coefficients ranging from .85 to .93 for the three component scores of interest at the grade levels included in the present study.

Procedure

Students selected to participate in the present study, by virtue of their earlier performance on the Canadian Achievement Test and their return of a signed consent form, were given a package containing:

1) a letter of instruction;
2) the Career Maturity Inventory (Counseling Form B-1 and an answer sheet);
3) the Self-Directed Search (assessment booklet and Occupations Finder); and
4) an envelope in which to return the materials, sealed.

The participants were instructed to complete the materials on their own starting with the CMI-AT followed by the Self-Directed Search. They were asked to return the sealed package to their school's main office as soon as possible. Periodic reminders to return the materials were given in the form of a letter as well as announcements

over the school's public address system. Distribution of the consent forms began in late November, 1989 and despite constant reminders to do so, some packages were not returned until April, 1990.

Although self-scored by the students participating, all answers on the SDS were checked for proper scoring by the researcher. Answer sheets for the CMI-AT were also hand scored by the researcher.

Statistical Analyses

The statistical analyses utilized within the present study included a 2 X 2 multivariate analysis of variance (MANOVA) and a Pearson Product Moment Correlation analysis. Since this investigation is an exploratory one, two-tailed tests were used. A probability level of $p < .05$ was selected for significance.

For hypotheses I, II and III, a 2 X 2 MANOVA was used to identify any gender or grade level differences as well as any interaction between those variables. The two levels for the grade variable were grades 9 and 10 students, and grades 11 and 12 students. The dependent variables included: degree of congruence, aspirational level, career maturity, decisiveness and independence.

Hypotheses IV and V were examined using a Pearson Product Moment Correlation analysis in order to determine whether any relationships between the dependent variables

were present. The relationships of interest for hypothesis IV were between the degree of congruence variable and the career maturity measures including the overall score and the subscales for decisiveness and independence. For hypothesis V, the relationships between the number of job choices listed on the SDS and the degree of congruence, career maturity, decisiveness, and independence were examined.

An additional analysis was performed in respect to the CMI-AT Counseling Form B-1. Specifically, the decisiveness subscale was examined in terms of its reliability and the possibility of improving its internal consistency. Reliability coefficients (Cronbach's alpha) were computed in order to determine whether or not dropping certain items from the 10-item subscale could improve the internal consistency of the decisiveness measure for the rural, gifted sample of this study.

Chapter Four

Results

An analysis of the data related to the five main hypotheses is presented in this chapter. The statistical analyses utilized included a 2 X 2 (gender X grade level) multivariate analysis of variance (MANOVA) to test Hypotheses I, II and III, and a Pearson Product Moment Correlation analysis to test Hypotheses IV and V.

Hypothesis I

The first hypothesis was tested using a MANOVA to determine whether there was a significant gender effect on the five dependent variables which included: degree of congruence between personality and career aspiration, aspirational level, career maturity, decisiveness, and independence. Table 2 reports the means and standard deviations for each of the measures in respect to the different subject groups. The MANOVA summary table presented in Table 3 indicates that there was no significant gender effect at the $p < .05$ level. Therefore, the null hypothesis is accepted and no significant differences between the male and female students are indicated.

Table 2

Means and Standard Deviations for Dependent Variables by Gender and Grade Level

Group	CON*		ASL*		OCM*		DEC*		IND*	
	M	SD	M	SD	M	SD	M	SD	M	SD
Males										
Gr 9 & 10	17.6	8.4	70.0	19.7	53.8	7.3	47.0	10.8	50.9	9.0
Gr11 & 12	21.9	7.6	64.9	14.5	53.8	8.0	50.3	9.6	48.1	10.6
Females										
Gr 9 & 10	18.4	8.3	55.5	17.5	55.6	10.4	44.4	10.7	51.2	9.1
Gr11 & 12	21.2	7.6	63.3	17.1	53.3	8.4	45.8	9.4	48.3	11.1

CON = Congruence, ASL = Aspirational Level, OCM = Overall Career Maturity, DEC = Decisiveness, IND = Independence

* Range of Scores for CON = 0 - 28
ASL = 17.8 - 101.7
OCM = 27 - 73
DEC = 27 - 73
IND = 27 - 73

Table 3

MANOVA Summary Table

Effect	Wilks Lambda	df(Hypoth.)	df(Error)	F
Gender	.87	5	65	2.01
Grade Level	.86	5	65	2.16
Gender by Grade Level	.95	5	65	.64

Hypothesis II

The second hypothesis also utilized a MANOVA to investigate group differences in regard to grade level on the five dependent variables. Descriptive statistics for the dependent variables and subject groupings are shown in Table 2. Table 3 presents a MANOVA summary table which reports no significant grade level effect at the $p < .05$ level. The null hypothesis is therefore accepted and no significant differences between the grade levels are indicated.

Hypothesis III

The third hypothesis examined the interaction between gender and grade level for the five dependent variables through a MANOVA statistical analysis. The means and standard deviations for the various measures are presented in Table 2. The MANOVA summary table (Table 3) indicates that there was no significant interaction between gender and grade level. Therefore, the null hypothesis is accepted and any group differences on the dependent variables cannot be attributed to interaction between the independent variables (gender and grade level).

Hypothesis IV

The fourth hypothesis examined the relationships between the degree of congruence variable and the three career maturity measures which included an overall score as well as scores for career decisiveness and independence. A Pearson Product Moment Correlation analysis was performed and the results are reported in Table 4. A statistically significant positive relationship between the congruence and independence variables ($p < .05$) was found. The correlation coefficients for the relationships between the congruence variable and the other two career maturity measures (overall score and decisiveness) were not significant at the $p < .05$ level. Thus, the null hypothesis is accepted for the overall career maturity and decisiveness variables but rejected for the independence variable in favor of the alternate hypothesis. Therefore, the only significant correlation indicates a positive relationship between congruence and independence.

Table 4

Pearson Product Moment Correlation Coefficients

	Congruence	No. of Job Choices
Congruence		-.13
Career Maturity	.18	-.03
Decisiveness	.10	-.12
Independence	.30*	-.12

* $p < .05$, two-tailed

Hypothesis V

The fifth hypothesis also utilized a Pearson Product Moment Correlation analysis to explore the relationships between the number of job choices listed on the SDS and the congruence variable as well as the three career maturity measures (overall, decisiveness and independence). The results are presented in Table 4 and indicate that no significant correlations exist between the number of job choices and the other four variables. The null hypothesis is therefore accepted. It is interesting to note, however, that despite the lack of any significant correlations, each shows a negative relationship with the number of job choices variable.

Chapter Five

Discussion

This study was an exploratory investigation into the career decision-making patterns of academically gifted, rural adolescents. Gender and grade level differences were examined in respect to congruence between personality and career aspiration, aspirational level, career maturity, decisiveness, and independence. In addition, relationships between the dependent variables were examined. This chapter will include a discussion of the results, limitations of the present study, practical implications, and implications for future research.

Gender Differences

The data failed to indicate any gender differences on the various career development measures administered to the academically gifted, rural high school students of the present study. These findings are in accordance with those of several previous studies (Fottler & Bain, 1980; Garrison, 1979; Kelly & Colangelo, 1990) showing female career decision-making processes to be quite similar to those of males. Garrison (1979), for instance, observed rapidly diminishing disparities between genders on

aspirational level occurring throughout the 1970's. By the end of that decade, female aspirations had increased to a level which was virtually equivalent to that of males. Although these trends refer to the general population, the present data would suggest that they apply to the gifted as well.

Fottler and Bain's (1980) finding that aspirations of female high school seniors were not lower than those of males - merely different - is also partially true here. Although no significant gender difference was found for the overall mean aspiration level in the present study, a visual check of the data showed a larger proportion of male than female students aspired to the highest level occupations (e.g., physician, engineer, physical scientist). Specifically, 35% of the males aspired to these types of jobs versus 21% of the females. While similar proportions of males and females aspired to middle level occupations (e.g., teacher, psychologist, nurse), the female students aspired to the lower level occupations (e.g., hairdresser, child care worker, musician) in greater proportions (i.e., 19% vs 4%) than the male students. This would suggest that although the overall level might not be different, the type of occupation aspired to by these academically gifted, high school boys and girls might vary.

The study by Kelly and Colangelo (1990) looked primarily at the career maturity of gifted students versus

regular and special learning-needs students in grades 7 to 9. Their results indicated that the gifted students exhibited greater career maturity than the other student groups, but no gender effect was seen. This latter finding is similar to the present results although using a different age group. It would appear then, that there are no gender differences in respect to career maturity for gifted students from grades 7 through 12. This suggests that there should not be differential expenditures in career counselling for academically gifted, rural boys and girls.

However, there were several other studies which found gender differences in career decision-making. That the present findings are contrary to these studies (Dowling, 1981; Dunne, Elliott & Carlsen, 1981; Fortner, 1970; Olive, 1973) can, for the most part, be explained. Fortner (1970), for example, compared aspirations of rural females with those of males taken from a study conducted nine years earlier (Stockin, 1961). With the amount of social change in the area of sex and vocation that has occurred in the recent past, these earlier findings may no longer apply today.

That the present findings are in contrast to Olive's (1973) study showing female high school students to have higher aspirations than a comparable group of males may have resulted from different requests being made of the student. In Olive's research, the students were asked to

choose an occupation they might "like to enter", as opposed to the request for their "most recent job choice" used in the current investigation. One deals with a future choice whereas the latter is designed to elicit a choice made recently.

Generally, the lack of gender differences found in the present study is in accordance with previous findings and instances of contrasting results would appear to be due to methodological or temporal reasons. Unfortunately, only limited research has focused specifically on the career decision-making processes of gifted students. Studies utilizing non-gifted students are understandably more prevalent and allow for a historical perspective which is not possible for gifted students. Within the non-gifted population, females appear to have increased their aspirations to levels equaling those of males. These developments seem to have been a gradual progression beginning in the early 1970's. Whether or not gifted students have made the same progress is difficult to ascertain, but they do appear to be exhibiting characteristics quite similar to their non-gifted peers, at this time.

As discussed previously, despite the overall lack of gender differences, there seems to be one aspect of the career decision-making process which does differentiate between gifted males and females. It appears that gifted females aspire to the highest level occupations less

frequently than their male counterparts and to the lower level occupations in greater proportions than the gifted males. Not surprisingly, these aspirations tend to be directed at traditionally female-oriented occupations. So, although it is hopeful to have seen recent increases in female aspirational levels, it seems that they have encountered an obstacle to their progress, namely - a reluctance to aspire to the highest level occupations. Heilman's (1979) findings suggest that female role models for male-dominated occupations may help to circumvent this obstacle. In addition, it may be necessary to improve the educational qualifications of the female students for those occupations. Thus, female role models as well as the educational decisions made by gifted female students would appear to be important aspects of their continued progress towards occupational equalization.

Grade Differences

The data failed to indicate any grade level differences on the various career development measures for the academically gifted, rural students of the present study. According to Super's (1963) theory, individuals are thought to enter the crystallization stage of career development between 14 and 18 years of age (approximate ages for grades 9 to 12 students). At that time they are said to formulate ideas about work appropriate for

themselves. The fact that no significant changes were observed between the grades 9-10 students, and grades 11-12 students in the present study may be an indication that these grades 9-10 students have already entered the crystallization stage. These findings also suggest that Super's specification stage of career development (18 to 21 years), during which time the individual narrows down his/her career decisions to a specific choice, was not achieved by the students during the latter stages of high school.

Admittedly, collapsing the four grade levels into two groups may have resulted in some loss of information. However, a visual check of the data revealed that the mean career maturity standard scores for the four grade levels were 54.9, 55.2, 52.5 and 55.1, for grades 9 through 12 respectively. The lack of any appreciable differential pattern over the grade levels suggests that the students neither entered nor exited a particular stage of career development. Presumably, a shift from one stage of career development to another would be accompanied by changes in the career decision-making pattern such as an increase in career maturity. Since no significant changes were evident (i.e., no grade level effect), it is not unreasonable to assume that the students had entered the crystallization stage of career development prior to high school and remained at that stage throughout.

Although no significant grade level differences were apparent, some minor differences in one of the variables were noted. Specifically, the degree of congruence variable exhibited a slight increase over the grade levels with a mean of 18.01 for the grades 9 and 10 students versus a mean of 22.07 for the grades 11 and 12 students. Interestingly, Iachan (1984) describes the range of congruence scores from 14 to 19 as "not a close match (between personality and aspiration)", while congruence scores from 20 to 25 are considered "a reasonably close match". So, although the difference in congruence scores is not statistically significant, the difference is in the right direction.

There were no further indications of variation over the grade levels for the remaining dependent variables which included: aspirational level, career maturity, decisiveness and independence. It could be interpreted from these findings that academically gifted, rural students are fairly stable in terms of their career development throughout high school. With respect to the aspirational level variable, the lack of a grade level effect may be related to the conclusions reached by Hales and Fenner (1972). They concluded that as rural students become older, they view their chances for entering highly respected occupations with increasing doubt. Therefore, aspirations would not be expected to increase over grade levels.

In addition, Thompson (1966) found that rural students place a great deal of value on job security. Perhaps the certainty of attaining such high level occupations is questioned by rural students, and consequently they are reluctant to aspire to these types of jobs. Under either of the scenarios provided by these two studies, the aspirational levels exhibited by rural students would not be expected to increase during high school, thereby providing possible explanations for the lack of grade level differences seen in the present study.

The absence of any grade level effect with respect to the three career maturity measures further suggests the aforementioned possibility that the students have entered Super's crystallization stage prior to the 9th grade level and remain there throughout high school. Incidentally, the mean career maturity standard scores attained by the present sample (Table 2) are slightly higher than the norms reported in the CMI-AT manual (Crites, 1978) for the various grade levels. Thus, it would appear that these academically gifted, rural students exhibit slightly higher levels of career maturity than their non-gifted peers. This finding would be in accordance with the assumption that these rural, gifted students enter the crystallization stage of career development at the expected age of entry (14 years) or slightly earlier.

It was hoped that the career maturity subscales for decisiveness and independence would help to provide a

better understanding of these gifted students in terms of either "multipotential" or "early emerger" characteristics. In addition, it was hoped that grade level comparisons may indicate the presence of developmental trends. Unfortunately, a lack of any main effects or significant deviations from CMI-AT norms for these variables provided little additional insight into the career decision-making patterns of these students. Presumably, a largely multipotential sample would have demonstrated low levels of decisiveness, whereas an early emerger-type sample would have resulted in high levels of decisiveness as well as independence.

In actuality, a visual check of the data showed that the mean decisiveness standard scores (44.63, 46.5, 47.25 and 47.65, for grades 9 through 12 respectively) differed minimally over the grade levels and were only slightly lower than the CMI-AT norms. The mean independence standard scores (50.68, 51.9, 48.0 and 50.15, for grades 9 through 12 respectively) showed even less deviation from the CMI-AT norms and no discernible pattern over the grade levels. Therefore, these rural, gifted students seem to exhibit only slightly lower levels of decisiveness than their non-gifted peers and similar levels of independence, while no significant developmental trends were apparent.

The third hypothesis, directed at identifying any interaction between gender and grade level, was not supported by the data. Therefore, responses on the various

measures of career development by both males and females did not vary significantly over the grade levels. This is further support for the lack of gender and grade level differences discussed previously.

The only dependent variable to exhibit even a slight tendency towards interaction between gender and grade level was the aspirational level variable. The female means for aspirational level increased from 55.5 for the grades 9 and 10 students to 63.3 for the grades 11 and 12 students, whereas the means for the male students decreased from 70.0 to 64.9 over the same grade levels. Although no significant interaction was found in this regard, future exploratory research might examine the possibility of such an interaction in more detail. Studies showing female aspirations to be increasing and even overtaking those of males (Dunne, Elliott & Carlsen, 1981; Garrison, 1979) suggest that this trend may be continuing into the next decade as the equilization of women in the work force becomes more of a reality. If a trend of this nature does continue, it would be of particular interest to identify when in their development women begin to exhibit their aspirational assertiveness and whether their educational decisions are in accordance with those aspirations.

To summarize, the lack of any gender or grade level effects within the present study is an indication that the career decision-making processes of academically gifted,

rural males and females are quite similar, in addition to being fairly stable throughout high school. The female students did, however, seem to differ from their male counterparts in terms of aspiring to the highest level positions less frequently and the lower level occupations more frequently. When comparing these gifted students to their non-gifted peers by way of the CMI-AT norms, the two groups did not differ significantly, but the gifted students did exhibit slightly higher levels of overall career maturity throughout high school and slightly lower levels of decisiveness. Therefore, the rural, gifted students within this sample would appear to be similar to their non-gifted peers in many aspects of the career decision-making process with the possible exception of some subtle differences in career maturity and decisiveness.

Interrelationships Among the Dependent Variables

A Pearson Product Moment Correlation analysis found no significant relationships between congruence and overall career maturity or decisiveness, but a significant positive correlation between congruence and independence ($r = .30$, $p < .05$). Thus, subjects exhibiting a high degree of congruence between their personality and career aspiration also tended to display a high level of

independence in regard to their career decision-making processes.

This would appear to be a logical relationship since the greater congruence students experience between their personality and career aspiration, the more comfortable they are likely to be with that aspiration or job choice. As a result, they may be less inclined to seek assistance with their career decision-making, thereby exhibiting greater independence. The fact that a significant relationship was found between congruence and independence but not between congruence and decisiveness may suggest the presence of multipotentiality. As the students' congruence scores increased, they tended to become more independent, but at the same time they failed to become any more decisive about making a career choice. This particular pattern would be characteristic of multipotential students since they are typically prone to indecision in regard to career decision-making.

From this interpretation, the academically gifted, rural students who are typically multipotential, would appear to be having some difficulty with the career decision-making process. They seem to be increasingly aware of appropriate job choices for themselves, as demonstrated by their rising congruence scores, but they fail to become more decisive about those choices. In addition, the students may not perceive themselves as requiring career counselling as indicated by their corresponding

independence, when in fact their lack of concomitant decisiveness and overall career maturity suggests that such intervention could be very benefical. The fact that 50% of the students approached in the present study agreed to participate is an indication that when given an opportunity to engage in career development activities, these students might be willing to do so. Whether or not they would seek out such services, though, is perhaps a more important question.

For the final hypothesis, no significant relationships between the number of job choices listed on the SDS and the congruence or career maturity measures were found but it is interesting to note that all of the correlations were in the negative direction. Negative relationships would indicate that the greater the number of job choices, the lower the degree of congruence, career maturity, decisiveness and independence, or vice versa. This is the type of relationship that would be expected since the less certain an individual is about possible careers, the more job choices they are likely to entertain and vice versa. Unfortunately, the correlations were not significant and as a result, it would be inappropriate to draw any conclusions from the data.

The lack of significant findings may have been the result of how the job choices were elicited. The actual form on which the job choices were to be listed consisted of eight numbered spaces and although the number of job

choices given by students ranged from 2 to 11, the majority of students (70%) listed exactly eight choices. The variability of this measure was therefore limited, as evidenced by its inability to fulfill the homogeneity of variance assumption according to a Bartlett-Box F-test ($p < .05$). Nonetheless, the fact that all the relationships with this variable were in the expected negative direction is an indication that, if presented in a less structured fashion, this method of eliciting job choices may be a more useful device for gathering career development information. It would be relatively easy to administer and might provide useful information to the career counsellor.

In summarizing the interrelationships between the dependent variables, a positive relationship was found between congruence and independence. The lack of a similar relationship between congruence and decisiveness, however, suggests that these rural, gifted students may be struggling somewhat with career indecision. The increasing levels of congruence in conjunction with independence, but not decisiveness, also implies that career counselling may be less sought after by these students despite the apparent need for such assistance. Unfortunately, the number of job choices variable was unable to provide any significant findings. However, the negative relationships with the congruence and career maturity measures are an indication that the number of job choices listed by a

student may be a useful variable for career counsellors, depending upon how the list is elicited.

Limitations of the Present Study

There were several limitations of the present study. First, the sample size was limited and as a result, it was necessary to combine the grades 9 and 10 students, as well as the grades 11 and 12 students in order to create cell sizes of at least 10 subjects each. Unfortunately, these groupings may have been less sensitive to grade or age differences. However, the relatively small number of gifted students available within the school division meant that the subject pool was limited. The fact that 50% of those students identified as academically gifted did participate, resulted in a response rate which was reasonable. For future studies, several rural school divisions might be involved in order to obtain a larger number of subjects at each grade level.

The subjects' ability to choose whether or not to participate in the present study may have biased the composition of the sample. For instance, early emergers would likely avoid any career development activities as indicated earlier, thereby causing early emergers to be underrepresented in this sample of academically gifted students. This point may be of little consequence,

however, since early emergers are usually a small minority within the gifted population (Marshall, 1981).

The criteria for selection of the academically gifted students in this study could have been more stringent by utilizing additional measures. Achievement test scores obtained up to three years previously were used to identify students as academically gifted which may raise the question of reliability. However, it was felt that by limiting selection to those students who achieved in the top 5 percentile nationally and in academic subject areas consisting of at least two subtests, a high standard was maintained. Additional criteria, though, might have included teacher reports on the students and actual school grades.

A procedural flaw was apparent in respect to students being able to complete the test materials during different periods of the school year (from Dec. 1989 to April 1990). Thus, some students would have responded before completing their first school semester while others did so towards the end of their second semester. This may have been particularly critical with the grade 12 students involved in the study, since actual job placement decisions may have been occurring during the latter stages of their school year.

Another limitation of the present study was the assessment tools utilized. The CMI-AT (Crites, 1978) appears to be somewhat suspect in regard to its

reliability. The CMI-AT manual reports internal consistency estimates (KR-20) ranging from .67 to .71 for the various career maturity subscales. Crites' explanation for these seemingly low coefficients is that the test items must make theoretical sense as well as differentiate between grades, which is apparently a difficult proposition in the field of career maturity. It should be noted, though, that the CMI-AT measures were used strictly for group comparisons as opposed to being utilized for individual career counselling purposes.

A secondary statistical analysis was performed, however, in regard to the 10-item decisiveness subscale of the CMI-AT. The analysis was conducted in order to discover whether the internal consistency of the subscale could be improved for the rural, gifted students involved in this study. A Cronbach's alpha reliability analysis found that by dropping certain items, the subscale's internal consistency could be improved from an alpha level of .71 to .80 (by excluding items 4, 6 and 7). This is an indication that the excluded items may be ineffective in differentiating between academically gifted, rural high school students in terms of their career decisiveness.

Practical Implications

Since this study dealt with a specific group of subjects, namely academically gifted, rural high school

students, it would not be appropriate to generalize the findings beyond this particular population. The finding that these students exhibited no overall gender differences in career aspirational levels, but that a smaller proportion of female students aspired to the highest level positions than their male counterparts, suggests several implications.

First, career counsellors should be cautious when interpreting career development literature reporting no gender differences, since subtle differences may exist which are important to the career counselling process. The results of the present study might be interpreted to suggest that females need some additional encouragement to consider aspirations for the top-echelon positions. On the other hand, Eccles (1987) would espouse that females make their occupational choices as a result of differential expectations for success and differential values. Therefore, the provision of female role models for high level occupations may be helpful in broadening those expectations and values and allowing for greater occupational choice amongst females. Perhaps more importantly though, enrollment in mathematics and sciences must be emphasized since background in these areas is usually necessary to facilitate the attainment of such high level aspirations.

Otherwise, rural, gifted females should be treated in much the same way as their male peers in terms of career

counselling. The similarities between males and females in regard to career development also suggests that a wide range of career opportunities should be presented to all students, as opposed to the traditionally gender-specific occupations thought to be appropriate in the past.

The importance of career counselling for rural, gifted students is further emphasized by the presence of a positive relationship between congruence and independence for these students, but no such relationship for congruence and decisiveness. Thus, as the students' personalities become more congruent with their aspirations, they tend to become more independent in terms of their career decision-making, but not necessarily more decisive about their career choices. This suggests that these students may require some form of career counselling to help them become more decisive about their career choices. Unfortunately, their independence may cause them to resist this sort of help and avoid career development activities.

Thus, another practical implication is the recommendation that career counselling for rural, gifted students be made mandatory. In addition, career counselling should be directed at helping the students in their career decision-making processes by enabling them to make more informed choices. Assistance could also be offered in respect to taking the necessary steps towards implementing the students' decisions such as obtaining

information on post-secondary institutions, training programs, etc. Ideally, career counselling should occur upon entry to grade 9 in order to formulate appropriate educational decisions and again in the latter stages of secondary school when specification and implementation of a particular job choice becomes necessary.

Implications for Future Research

To conclude, this study was primarily exploratory and despite generally nonsignificant results, several interesting areas for further investigation became apparent. For instance, although no gender differences were found for aspirational level, this area seems to be in a state of transition and further research is called for. As well, the potential usefulness of the number of job choices variable would appear to be a promising area for future inquiry. In terms of replicating the present design, perhaps a larger sample size could be utilized in order to allow for distinctions between each grade level. In addition, an academically gifted sample might be compared to a group of normally achieving students, and/or rural subjects compared against an urban sample.

In respect to the instruments used, the SDS was found to be well-suited to self-administration and might be described as "user-friendly". The Iachan Index would also appear to be a device which deserves further use and

exploration. It is hoped that this index will help to advance the congruence construct within vocational counselling and in so doing, provide career counsellors with a useful measure of career development. The CMI-AT was found to be useful in terms of its self-administrative properties but did present some statistical dilemmas. The reliability analysis performed on the decisiveness subscale suggests that this particular measure may not be an entirely appropriate one with an academically gifted, rural population. Consequently, a different measure of career decisiveness (e.g., Career Decision Scale) might be used to provide more information in this regard.

Further research in the area of career development with these students might employ a longitudinal design as opposed to the cross-sectional method used in the current investigation. This might result in a more precise identification of the relevant changes which occur in the career decision-making process over time, and when in the developmental sequence these changes are generally manifested. Finally, case study-type research might provide some interesting qualitative findings, since gifted individuals would presumably offer a variety of insights into their own behavior, especially in an area so important to their self-identity.

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