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Influences On Career Decision-Making Skill

by

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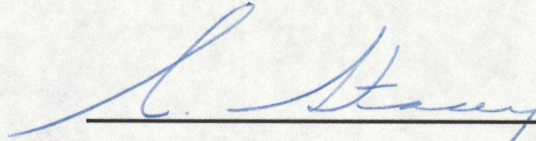
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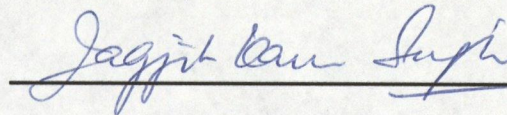
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ABSTRACT

The purpose of this investigation was to explore the career decision-making skills of high school students within the context of the Social Learning Theory of Career Decision Making. Parental role models and participation in a grade 11 Career and Life Management (CALM) course were viewed as factors affecting skill level.

Three hundred and sixty-seven grade 11 and 12 students provided survey data for analysis of parental factors. Many students viewed parents as important decision-making role models. Parental education and the decision-making environment at home were significant factors associated with student skill level.

Data from 208 grade 11 students was used to assess the effectiveness of CALM in raising decision-making skill level. Only partial support for CALM was found. Problems with the study are discussed.

The thesis reveals a lack of literature examining career decision-making skill and parents as role models of skills or processes. The research also suggests that measurement of career decision making skill needs to be reconsidered in terms of content and process aspects.

ACKNOWLEDGEMENTS

DEDICATION

To my daughters, Cayly and Keenan,

for whom I am a role model.

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CHAPTER 1

OVERVIEW

This research explored some of the factors which may
influence the development of decision-making skill.
Everyone makes decisions. In the case of career decision
making, we often assume those decisions accurately reflect a
person's interests and abilities. Good decisions, career or
otherwise, require conscious and systematic consideration of
alternatives. Further, experience and observation suggest
that some people make important decisions without fully
evaluating their alternatives.

The assumption underlying this research is that
decision making is a skill that is learned early in life.
Parents, and other people with whom one interacts closely,
have the opportunity to demonstrate how to make decisions.
This skill may also be developed through instruction.
Students in this study were involved in a high school course
which had, as one of its objectives, a focus on decision
making.

The thesis has been organized into chapters. Chapter 2
deals with career development. The specific focus is on
theories of career development which address how we move
from one developmental stage to another. Krumboltz'
(Krumboltz, Mitchell, & Jones, 1976) social learning theory
of career decision making has guided this research because
it is one of few which deals specifically with decision-

making skill. Chapter 3 begins with a discussion of decision making in general and closes with a specific focus on career decision making. Chapters 4 and 5 present the thesis research in the form of two separate studies. Chapter 4 deals with some of the influences parents may have on the development of decision-making skill. Chapter 5 looks at the effects of the high school course, Career and Life Management (CALM), on decision-making skill. Finally, Chapter 6 relates the findings of the two separate studies to the broad areas of decision making and career development.

CHAPTER 2

CAREER DEVELOPMENT AND CAREER DECISION MAKING

Many people express a great deal of interest in the career decision-making skills of high school students. They understand the dilemma facing students as the number of possible occupations rises along with increases in information and technology. To add to the pressure is our society's preoccupation with money and success. There is wide spread consensus that choosing a career is an important and difficult task that students must face early in their lives.

How can a young person know what the best career decision is? How can he/she manage large amounts of information and complex situations that present themselves as career opportunities? One way to gain control of complicated decisions is to systematically examine all of the information using a decision-making process which reduces the information to manageable cognitive pieces so that the relevant factors can be considered. Making complex decisions without some sort of system allows high salience factors to overshadow low salience issues which may be just as important.

Career decision-making skills help people make good decisions and set the career development process in motion. They also help us to learn more from our decisions and make it possible to improve decision making in the future. This

is possible because one of the steps involved in decision making is to evaluate the decision itself. Therefore, each career decision is an opportunity for the decider to learn something about him- or herself and about how the decision fits into a lifelong career development process.

Career Development

The concept of career development has been used to describe the extent to which an individual has an understanding of the information and processes that will impact one's career. Osipow (1983) reviews stage theorists like Super and Ginzberg who have written a great deal about the various stages of career development. Osipow also notes that very few theories deal with what causes the developmental changes. How do people move from one stage to another?

Osipow's comprehensive review includes two theories which attempt to answer the question of how career development moves from stage to stage: Tiedeman's theory of career development and Krumboltz' social learning theory of career decision-making skills (Osipow, 1983).

Tiedeman's (Tiedeman & Miller-Tiedeman, 1979) theory connects career development to the development of a person's self-concept. The development of self-concept enables one to view such things as careers and marriage in progressively more depth and complexity. The idea is that you must have personal maturity before career maturity is possible. It

seems that this theory only transfers the question of how development occurs to the area of self-concept. One is now left wondering what causes the self-concept to develop. Is it something that develops in conjunction with physical maturity or does it develop as a result of interaction with an environment?

Social Learning Theory of Career Decision Making

Krumboltz (1979) links career development to three things; inherited characteristics, environmental situations, and the individual's learning history. The most important element is the learning history because the individual can do nothing about inherited factors and very little about environmental factors. In accordance with traditional social learning theory, Krumboltz (1979) identifies two types of learning which are important for career development. Instrumental learning occurs when the individual interacts directly with the environment. Associative learning is the result of observing the outcome of other people acting on the environment.

Krumboltz (1979) claims that there are three outcomes of instrumental and associative learning about careers. Firstly, the person develops self-observation generalizations; knowledge about his/her own values, goals, beliefs, etc. This information translates into occupational preferences.

Secondly, the person gains task-approach skills.

Task-approach skills are those cognitive, performance, and emotional abilities which enable people to interpret their environments in relation to what they know about themselves (Krumboltz, 1979). In the case of career decision-making skills, task-approach skills include (a) value clarifying, (b) goal setting, (c) predicting future events, (d) alternative generating, (e) information seeking, (f) estimating, (g) re-interpreting past events, (h) eliminating and selecting alternatives, (i) planning, and (j) generalizing (Krumboltz, 1979).

Thirdly, the person is prepared, as a result of greater understanding of self and better career decision-making skills, to take action in the form of job entry behaviors (Krumboltz, 1979).

Krumboltz' theory is more comprehensive than Tiedemen's. The combination of knowledge, skill, and action within the context of a specific environment result in career development. Tiedeman's theory relies on development of only self-concept to move career development along.

Krumboltz (1979) presents three categories of propositions which guide the generation of hypotheses testing of this theory. One set explores those factors which influence the definition of personal preferences. Another set of propositions looks at the factors which impact the development of career decision-making skills. The last set examines the factors which influence career

entry behaviors. In each of these three categories Krumboltz (1979) provides both positive and negative influences to demonstrate that some situations may inhibit career development while others enhance it.

The theory does not address gender differences. However, other research does suggest that there may be gender differences particularly in the development of preferences. Betz and Fitzgerald (1987) cite a number of articles which support gender differences in preferences, motivation, and expectations. Some of the research testing other aspects of the theory has looked at gender differences. This literature is covered in the next chapter.

The propositions relating to career decision-making skills are the core of this thesis. Those propositions, adapted from Krumboltz (1979), are presented in three pairs in Table 2.1. The first pair (A1 and B1) suggest that positive and negative reinforcements influence the development of career decision-making skills. The next pair (A2 and B2) deals with the effects of observing real or vicarious role models making career decisions. The last pair of propositions (A3 and B3) indicates the importance of being able to draw upon people and resources to get the necessary information about how to make decisions.

Research for this thesis focused on two of Krumboltz' career decision-making propositions. Firstly, proposition

Table 2.1
Propositions About
Factors Influencing Career Decision-Making Skills

A. Positive Influences
A1. An individual is more likely to learn the cognitive and
    performance skills as well as the emotional responses
    necessary for career planning, self-observing, goal
    setting, and information seeking if that individual has
    been positively reinforced for those responses.

A2. An individual is more likely to learn the cognitive and
    performance skills as well as the emotional responses
    necessary for career planning, self-observing, goal
    setting, and information seeking if that individual has
    observed real or vicarious models engaged in effective
    career decision-making strategies.

A3. An individual is more likely to learn the cognitive and
    performance skills as well as the emotional responses
    necessary for career planning, self-observing, goal
    setting, and information seeking if that individual has
    access to people and other resources with the necessary
    information.

B. Negative Influences
B1. An individual is less likely to learn the cognitive and
    performance skills as well as the emotional responses
    necessary for career planning, self-observing, goal
    setting, and information seeking if that individual has
    been punished or not reinforced for such behaviors.

B2. An individual is less likely to learn the cognitive and
    performance skills as well as the emotional responses
    necessary for career planning, self-observing, goal
    setting, and information seeking if that individual has
    observed real or vicarious models receive punishment
    and/or little or no reinforcement for attempting to
    engage in career decision-making activities.

B3. An individual is less likely to learn the cognitive and
    performance skills as well as the emotional responses
    necessary for career planning, self-observing, goal
    setting, and information seeking if that individual has
    little or no access to people and other resources with
    the necessary information.

(Adapted from Krumboltz, 1979)

A2 was translated into a study of the effects of parents as career decision-making role models on high school students. The rationale was that students have ample opportunity, in terms of time and proximity, to observe their parents making all types of decisions. It is also assumed that parents, overall, would demonstrate a full range of excellent to poor decision-making skills.

Secondly, testing of proposition A3 was prompted by the existence of a mandatory high school course which teaches career and life management including decision-making skills. This course provided a natural intervention to test the effectiveness of teaching decision-making skills to high school students.

For clarity, tests of these two propositions and related research questions are presented separately in Chapters 4 and 5.

CHAPTER 3

DECISION MAKING

Kozielecki (1981) provided a particularly lucid account of psychological decision theory in his book of the same name. In it he distinguished between two types of decision-making theory. The first is prescriptive, also called normative decision-making theory, and seeks to explain how to make optimal decisions. The focus is on rational decision making as a technique. Game theory, for instance, is a rational decision-making approach. The second type of decision-making theory is descriptive. Researchers look for the factors which influence the decision-making process. In Kozielecki's (1981) words, the former is focused on "know how" and the later focuses on "know what".

Kozielecki (1981) criticizes rational decision-making theory and its research because it does not take into account the values and judgements of the human element. It deals with closed tasks which have a finite set of alternatives with known or calculable probabilities. Psychological decision theory, on the other hand, is able to, and must by definition, take into account the individual's sense of urgency, values and preferences, cognitive processes, dynamic situations, and environmental influences.

In separate parts of the book, Kozielecki (1981) describes the steps involved in both decision-making

theories. In fact, the process steps are virtually the same in both cases. The only real difference is how the criteria, heuristics, or algorithms are determined. In rational decision making, used mainly by economists and statisticians, the algorithms are linear and quantitative in nature. In psychological decision-making theory the heuristics are qualitative variables based on personal values, personality, aspirations, and situations. In the first case you would expect two people to come up with similar algorithms and conclusions; in the second case, every person would have their own unique set of criteria which may change over time as the person's situation changes. In terms of process, the two types are not different. Perhaps there is only one type of decision-making theory which may be applied to different disciplines such as psychology, economics, and statistics by selecting a different set of decision criteria.

Kozielecki (1981) states that psychological decision theory is concerned with the process as well as the processor. However, his book is directed at the processor only. This author has focused on the factors that influence the decision, not on factors that influence the decision process and its related skill demands. Psychological decision-making research, in general, has focused on how various probabilities and situations affect the outcome of the decision. Very little research has been done to

investigate factors which influence the acquisition of decision-making skills. This thesis is not about decisions, it is about the process; the skills required to decide. More specifically, it is about career decision-making skills.

Career Decision-Making Steps

Career decision making is the process of choosing between occupational alternatives. The process evolves through time in two ways. Firstly, decisions may appear to be made at a particular moment in time but the decider actually goes through a series of steps only one of which is choosing or deciding. Secondly, over longer periods of time, the skill with which a person manages the decision-making process also changes (Krumboltz, 1979; Tiedeman, 1961). This evolution of the process is influenced by the environment, maturity, practice, and analysis of previous decisions. It is through review of a series of career decisions that career development occurs.

The career decision-making literature was reviewed to identify the process steps necessary for deciding on a career option. Five models were used to compile a composite model of decision-making steps along with the required inputs and consequent outputs (See Table 3.1). Since this list is more comprehensive than any presented in the literature, it is a useful reference for the following discussion of the five models (Bessert, Crozier, & Violato,

1988; Snodgrass & Healy, 1979; Gelatt, 1962; Krumboltz, Scherba, Hamel, & Mitchell, 1982; Walsh, 1987).

There was unanimous agreement around the first step variously identified as defining goals (Bessert, Crozier, & Violato, 1988; Snodgrass & Healy, 1979), setting objectives (Gelatt, 1962), or defining the problem (Krumboltz, Scherba, Hamel, & Mitchell, 1982; Walsh, 1987). This step requires awareness of the need to decide and provides focus for the decision to be made. The level of the objective relates directly to the outcome of the decision. If the goal is general it will result in a broad spectrum of alternatives. A career goal such as "working in the airline industry" leaves open many different options. A specific career goal of being an airline pilot reduces the options considerably.

The second and third steps, defining criteria and generating alternatives, may occur simultaneously as the person generates criteria and options both from memory and through information gathering. There was not as much agreement among models on these steps as there was on step one. Defining criteria was not listed as a step in any of the studies, however, three papers (Gelatt, 1962; Krumboltz et al, 1982; Bessert et al, 1988) listed steps such as clarifying values or identifying resources. These items, along with awareness of expectations and constraints, are prerequisites to criteria definition. Although generating alternatives was listed in all five studies, its place in

Table 3.1

<u>Career Decison-Making Steps</u>

Prerequisites	Steps	Consequences
Needing to make a career decision	Define Career Objectives	Clarify & focus decision process
Know your values, expectations, constraints, and resources	Define Desired Criteria	Identifies major factors to be used in comparing all career options
Having knowledge of, or feeling for, possible careers	Generate Career Alternatives	Surfaces more options & helps to avoid missing the best solution
A clear statement of personal criteria and career alternatives	Evaluate Career Alternatives	A rank or score is produced by systematic comparison
Having a common basis for comparison of different careers	Decide	Focuses action on the career goal
Know the career goal and what is needed to achieve it	Plan and Implement Career Decision	Makes it possible to achieve the career objective
Know the decision objective and be aware of the outcome	Evaluate Career Decision	New knowledge and skill become available for the next decision

<u>Gathering information</u> may be necessary to clearly define the criteria and alternatives. Often the best solution will be revealed by going beyond existing information.

the order of steps varied. The outcome of defining the criteria is a clear set of factors against which the alternatives will be compared. Conscious generation of alternatives guards against missing a better alternative or choosing the first alternative that comes to mind.

In Table 3.1, defining criteria precedes generating alternatives in order to give priority to the inclusion of values, expectations and resources in the decision. If the criteria are generated to fit the alternatives then critical personal factors may not be considered. For example, if a person wanted to be a commercial pilot, he/she could neglect to consider his/her limited visual ability and focus instead on high Mathematics grades. The person may then pursue the career and only later find that commercial pilots require uncorrected vision.

Criteria may also be generated at different levels to screen different types of information. For example, wanting to work in any city opens up more options than wanting to work in Calgary.

Some of the studies included an information gathering step (Gelatt, 1962; Snodgrass & Healy, 1979; Walsh, 1987). This was not included as a definite step in the current model since information may or may not be needed to create criteria and/or alternatives. In fact, needed information may not be available. For example, a person would not be able to predict their reaction to a novel situation. More

information is almost always required when the decision is complex. Information would normally be gathered in conjunction with refining criteria or generating alternatives.

Evaluating alternatives is the fourth step. In order to do this effectively the criteria and alternatives must be clearly identified. The result is awareness of how well each alternative meets the same critical factors (a type of standardized checklist) in the decision. It is possible to compare alternatives according to ranks, scores, or possible consequences. Three of the studies reviewed included this type of step (Krumboltz et al, 1982; Walsh, 1987; Bessert et al., 1988).

The fifth step, deciding, flows directly out of the evaluation of alternatives which clarified how each alternative fared on the list of critical elements. This step produces a focus for the next two steps. Since deciding is a fundamental step in the decision-making process, it is surprising that Gelatt (1962) and Krumboltz et al. (1982) did not include it in their models. Bessert et al. (1988), Snodgrass and Healy (1979), and Walsh (1987) all included the decision as a step in their models.

With many decisions it is necessary to make an action plan for implementation of the decision; step six. Using the focus produced by the decision, action planning and implementation move the decision into reality. All but one

of the papers reviewed (Gelatt, 1962) included a planning and/or implementation step.

The final step in the decision-making process is evaluation of the decision. The requirements for this step are a clear definition of the original objective and an awareness of the outcome. Comparison of these two pieces of information provides the opportunity for corrective action if necessary and for learning which may influence subsequent decision-making skill and/or decisions. Three of the papers supported this step (Gelatt, 1962; Walsh, 1987; Bessert et al., 1988).

Formal use of this type of process is dependent upon the complexity of the decision. In very complex decision situations a person may actually go through the steps and write everything down. In less complex decisions, with only a few factors to consider, the process is usually handled mentally. For very mundane decisions we may not be aware of using a process at all. Sometimes it would be necessary to write down certain information and control other parts mentally. The process is adaptable to the individual's skills and needs.

Overall, the literature demonstrates considerable agreement about what process steps are necessary for decision making.

Influences on Career Decision Making

In reviewing the career decision-making literature it

was useful to categorize the research according to factors that precede the decision-making process, the process itself, and outcomes of the process. Most of the career decision-making research has focused on factors which precede the process of making decisions.

Factors Preceding Decision Making

Within this first category some of the research looks at associations between the antecedent factors. For example, anxiety has been compared to decision-making style (Bluestein & Phillips, 1988) and gender differences in coping with career decision making (O'Hare & Beutell, 1987). Another study compared learning styles with decision-making style (Gordon, Coscarelli, & Sears, 1986). Brooks, Holahan and Galligan (1985) looked at the effects of nontraditional role models on career preferences.

The balance of the research in this first category looks at the effects of antecedent factors on consequential factors. Gender differences have stimulated a lot of research in the areas of career decidedness (Neice & Bradley, 1979), career or occupational choices (Goodale & Hall, 1976; Harren, Kass, Tinsley, & Moreland, 1979; Lips & Colwill, 1988; Betz & Fitzgerald, 1987). Effects of self efficacy on career indecision (Taylor & Betz, 1983) and on career selection (Lent & Hackett, 1987) have also been studied. Other studies have investigated the relationship between personal characteristics and decidedness (Holland &

Holland, 1977), values and occupational choices (Goodale &

Hall, 1976; Zakay & Barak, 1984), anxiety and career

indecision (Hartman, Fuqua, & Blum, 1985), as well as

cognitive complexity and career choice (Harren et al.,

1979).

Decision-Making Process Factors

Secondly, the career decision-making literature

was further split into two sections in relation to the

skills used in handling the decision-making process. The

first group of articles reviewed looks at factors which

affect career decision-making skill. The next group looks at

how using career decision-making skills affects the outcome

of a decision.

Factors influencing decision-making skill.

Training, teaching, and counselling have been used to

improve career decision-making skills. Effectiveness of

Snodgrass and Healy's (1979) counselling procedure was

measured by pre- and posttest scores on The Career

Counselling Inventory (knowledge and career planning) and

the Problem Solving Scale of Crites' Career Maturity

Inventory (problem solving). The university undergraduates

used in this study increased their knowledge of career

decision making and planning but did not increase their

ability to solve their own career problems. Egner and

Jackson's (1978) career decision-making skill counselling

program for grade 11 students significantly increased career

maturity posttest scores on The Career Maturity Index.
Career decision-making skill is one component of career
maturity. They also found that academic (college bound)
students were not as likely to benefit from the intervention
as nonacademic students.

Two studies by Krumboltz and his colleagues looked at
teaching and training career decision-making skills. In a
study by Krumboltz et al. (1982) a 90 minute training
session in rational decision making was given to a broad age
range (16 - 50 years old, mean age 22) of students in a
community college. A control group received training in
interviewing techniques. Knowledge of the decision-making
process was assessed by the College Board's Career Decision-
Making Skills Assessment Exercise (CDMSAE). Ability to
transfer the knowledge was determined by scores on the
Decision Simulation. Researchers found significant
increases in knowledge of career decision making and quality
of career choices among females and young males. The study
found a sex by age interaction with older females scoring
higher than younger females and younger males scoring better
than older males. The researchers attributed this result to
background differences in the older students who attend
college during the day.

In a second study, Krumboltz, Kinnier, Rude, Scherba,
and Hamel (1986) tried to identify who is most likely to
benefit from training in rational career decision-making

skills. Their sample of community college students was categorized according to one of five decision-making styles as measured by the Decision-Making Questionnaire (a paper and pencil test of thoughts and behaviors the person used in past decisions). Decision-making skill was measured with the Career Decision-Making Skills Assessment Exercise (CDMSAE). Significant increases in skill were achieved by groups who had previously used one of the following decision-making styles: fatalistic, dependent, or impulsive. That is, people who felt little control over life's outcomes; who relied on others' advice; or who made spur of the moment decisions. Subjects who had used rational (logical and systematic) or intuitive (gut feeling) styles did not benefit significantly from the treatment. Gender differences were not examined in this study. One conclusion that may be drawn from these two Krumboltz studies is that decision-making skills are amenable to instruction, particularly for people who are not currently using them. It may also suggest that decision-making style is not so much a trait as it is an indication of the schema one has adopted.

One other study of factors which influence decision-making skills was done by Blustein and Strohmer (1987). They found that undergraduates selected information, for use in their decision-making process, according to whether they wanted to include or exclude an alternative they were

considering. In other words, they were biasing the process in favour of preconceived attitudes or expectations about what they wanted. Gender was not considered.

Effects of using good decision-making processes

Three studies were found which addressed the effects of using a career decision-making process. Barak, Carney, and Archibald (1975) found that engaging in vocational information seeking behavior by university freshmen did not significantly increase career decidedness. Healy and Mourton (1985) studied community college students. They found that students with higher level decision-making skills exhibited more congruence between their occupational choice and their stated interests. Finally, Hart, Rayner, and Christensen (1971) did a retrospective study of the amount of planning and preparation used by men in a career hierarchy. A positive correlation was found between the amount of planning and preparation and the level of their occupation. Professionals used significantly more planning and preparation than skilled workers. Semi-skilled workers relied primarily on chance to determine their occupation. These last two studies suggest that the ability to decide and plan is associated with more control over one's career. A question left unanswered is whether ability to decide leads to control or vice versa.

The literature provides very little research that deals with the process as a whole. The decision-making process,

has inputs and outputs. Much of the research on decision making has studied the inputs and outputs while treating the process as a black box. This approach emphasizes the conceptual differences between the process and the inputs or outputs. Regardless of a person's values, or the risk and importance he/she places on the decision, the process remains the same.

Articles on teaching career decision-making skills relate directly to one of the topics researched in this thesis; the career and life management (CALM) course. However, there are no articles which relate directly to the concept of parents as role models of career decision-making skills.

Measuring Career Decision-Making Skills

Donald Super's Career Development Inventory (CDI) (1979) is a measure of career maturity. It contains a decision-making subscale designed to assess ability to make career decisions. The inventory is available in both school and college forms. The CDI has been used by Nevill & Super (1988), Blustein and Strohmer (1987), Neimeyer (1985), and McAuliffe (1988) to measure decision-making skill.

The Decision-Making subscale (CDI-DM) presents 20 short scenarios of people making career decisions. It was designed to test the ability of students to "apply knowledge and insight to career planning and decision making" (Thompson & Lindeman, 1981). It minimizes gender

differences by using initials instead of names and by
selecting an equal number of traditionally female and male
occupations. The complete scale has been normed on 5706
American students in grades 9 - 12. The sample was drawn
from a wide range of schools and locations.

Reliability on the CDI-DM for grade 11 and 12 students
has been estimated at r = .69 and r = .64, respectively.
With an alpha coefficient this low, it is suggested that
results are satisfactory for determining group differences
but should be used with caution in making statements about
individuals. The standard error of measurement for grade
11s is 11.1 and 13.0 for grade 12s. Results "are expected
to be stable over weeks or months; noticeable developmental
changes occur only over periods of one or more years"
(Thompson & Lindeman, 1981).

Construct validity of the CDI-DM is supported by
significant differences between genders, across grades and
curricula (Thompson & Lindeman, 1981). Females in grades 11
and 12 tend to have higher scores than their male
counterparts. There is an increase in scores as grade level
increases. There is a progressive increase in student
scores going from vocational to business to academic
programs. In factor analysis, CDI-DM loads heavily on a
cognitive factor (Thompson & Lindeman, 1981).

Krumboltz used the CDMSAE for his research on career
decision-making skills (Krumboltz et al., 1986; Krumboltz,

et al., 1982; Krumboltz, 1979). This scale is a 60-item multiple choice paper and pencil test designed to measure application of rational processes to hypothetical career decision situations.

Krumboltz and his colleagues developed the Career Decision Simulation (CDS) (Krumboltz et al., 1982) to measure the consistency of actual decisions with the person's stated values. This is a measure of criterion use; one of the steps in the decision-making process.

Instruments typically used to measure decision-making skill do not test an individual's ability to manage the process themselves. Multiple-choice questions set up hypothetical decision situations and provide possible solutions. All a person has to do is make sense of the information presented in the question. In real-life situations a person must be able to extract the useful information, organize it, and then make the decision. In essence, a the person must be able to write the multiple-choice question which relates to his/her own life. This is not as easy as responding to a situation generated by someone else. In this sense, the existing methods of measuring decision making and career decision-making skills seem to fall short of assessing individuals' ability to manage the decision process themselves.

In response to this situation a scale was developed by the author to gather information about the individual's

decision-making behaviors in a real decision situation. The Student Decision-Making Steps (SDMS) (see Appendix A) was designed for this research to assess the extent to which a person uses a logical decision-making process. Students were asked to write down a recent important decision they had to make. With this decision in mind, they were asked to answer 13 questions designed to represent the seven steps of the decision-making process. The questions were developed from a breakdown and discussion of decision-making steps as outlined earlier in this chapter.

Since the SDMS was designed to represent a series of steps or a process, an hierarchical procedure was required to validate the scale. The Guttman coefficient of reproducibility has been used to validate measures of science process skill (Yeany, Yap, & Padilla, 1986). This analysis assumes that the steps in a process must be completed in a specific order to complete the task. That is, step one must precede step two which must precede step three etc. Data are checked to determine the extent to which participants performed the steps in the order specified in the process. The data used in this thesis provided a Guttman coefficient of reproducibility of .89 This exceeded the minimum marginal reproducibility of .78 for the data and cutoff points used in this analysis and approximated the general guideline that a coefficient of .9 represents a valid scale.

Reliability of SDMS was estimated using the Kuder-Richardson 20 formula. The reliability coefficient for pretest data was .65 and for posttest data, .72. Test-retest reliability on the students who did not have the benefit of CALM was r (30) = .61, p<.000.

There are three major differences between this scale and the CDI Decision-Making scale. First, the SDMS references decision making in general while the CDI scale refers to career decision making. A general approach was taken in order to accomodate students who were making life decisions but were not yet making occupational choices. This leads to the second difference. The CDI scale with its emphasis on career decision-making knowledge is content focused while the SDMS's attention to behaviors and methodology is process oriented. Finally, the CDI refers the student to hypothetical situations while the SDMS targets a relevant decision situation. Therefore, SDMS may be better able to assess the decision-making skills over which an individual student has control. SDMS and CDI-DM have both been used as dependent variables in the studies that follow. A brief discussion of the two measures, as they relate to the research in this thesis, is included in Chapter 6.

CHAPTER 4

PARENTAL INFLUENCE ON CHILDREN'S

CAREER DECISION-MAKING SKILL

The purpose of this chapter is to investigate the relationship of parents as role models to career decision-making behaviour of their children. Among the theoretical propositions laid out by Krumboltz (1979) is a pair which relates to the influences of role models.

Proposition IIA2

An individual is more likely to learn the cognitive and performance skills as well as the emotional responses necessary for career planning, self-observing, goal setting, and information seeking if that individual has observed real or vicarious models engaged in effective career decision-making strategies.

Proposition IIB2

An individual is less likely to learn the cognitive and performance skills as well as the emotional responses necessary for career planning, self-observing, goal setting, and information seeking if that individual has observed real or vicarious models receive punishment and/or little or no reinforcement for attempting to engage in career decision-making strategies.

(Adapted from Krumboltz, 1979)

Parental Role Models

Although parents are not the only role models referred to in these propositions, it is clear from the social learning theory of career decision making (Krumboltz et al., 1976) that parents should have a strong influence on their children's career decision-making skill. The family provides an environment in which children have an opportunity to interact with and observe adults making decisions.

The career decision-making literature strongly supports the influence of parents on the career development of their children. However, like the career decision-making literature previously reviewed, most of the research has focused on preferences and attitudes about careers. Very little research has looked at the effects of role models on the learning and use of processes such as career decision making and planning. For this study it was assumed that general findings from the attitudinal literature would be generalizable to research on the effects that parents have on career decision-making skill. This assumption provides a starting point for exploratory research in this area.

In 1985 the Journal of Career Development (Miller & Weeks, 1985) devoted an entire issue to the influences of parents and family environment on career development. This volume contains a number of thought-papers which reference studies and theories supporting the strong influence of

parents on career planning, career choices, educational goals, career development, and aspirations. Parental and family influences are also associated with differential effects on male and female career choices, educational goals, and career development.

Saltiel (1985) differentiated between definers (people with whom students interact directly) and models (people who set examples) for students reporting career aspirations. Definers had a stronger influence on high school students than models had. In the same study it was shown that parents are by far the strongest providers of definer information for males (40%) and females (50%). Goodale & Hall (1976) found that parents' educational level was positively related to high school sophomores' college and career plans. Parents' education has been linked to their children's career plans, aspirations, and other outcome indicators.

No studies were found which linked parent's education to decision-making skill development in their children. Hautamäki (1986) published a study which linked different socioeconomic levels of parents to the voluntary learning levels of their children. Voluntary learning activity in 11- and 12-year-olds was defined as their ability to master and control their own learning. Parental role models were categorized according to their socioeconomic levels as assessed by education, occupation and other variables

relevant in Finland. Students who were in a non-academic educational program were more likely to have the same learning activity level and educational attainment as their parents. Students in an academic or college-preparatory program, regardless of socioeconomic status, were more likely to be independent of their parents' learning activity level. It would appear that the student's education acts as a moderator variable; reducing the strength of the parental influence on voluntary learning.

In a social learning model of parental role modelling, the gender of both the role model and the observer/learner must be taken into account. The learner may respond not only to the actions of the role model but may also identify with role models of one gender more readily the other.

Betz and Fitzgerald (1985) have done an extensive review of the literature on women's career development in their book Career Psychology of Women. One of the areas they have looked at is career and educational aspirations and achievements. The authors cite lack of same-sex role models as a major limitation in the career development of women. There are too few women with a definite career orientation and, as a result, the perceived range of careers that women choose from is narrow.

Males most often cite same sex occupational role models while women may report either male or female role models (Betz & Fitzgerald 1985). The same authors also report that

males are more likely to choose their fathers as occupational role models but women are more likely to select teachers. Saltiel (1985) found that males identified strongly with their fathers as achievement role models. In the same study, females identified teachers more often than either parent as achievement role models. Both males and females listed peers as their strongest aspirational model (Saltiel, 1985). In light of this research it is not surprising that Goodale and Hall (1976) found females were less likely than males to inherit their parents' career attainments. Females take their information and direction from a broader range of influencers than males do.

This literature provides the following insights. Firstly, there has been virtually no research done on the influence of parents as role models for the development of process skills. Secondly, no research was found which compared gender differences for parents as role models of process skills. Thirdly, although there is ample research into career development and parental role models, it is focused on occupational choices and educational or career aspirations. These variables are attitudinal and may not be influenced by the same factors or in the same way that skill development would be.

The process hypotheses in this chapter have been developed from these attitudinal studies. Since previous research has not provided a basis for study of the effects

of parental role models on children's skill development, this research is, by necessity, correlational and exploratory.

It is also worth noting that home life and the work world in North America have changed significantly in the past 30 years. Both men and women have much different roles at home and at work at the start of the 1990s. Research which reflected the career development realities of the 1950s and 1960s may not predict career development patterns today. College freshmen who participated in research in 1975 were born in the 1950s. Grade 11 and 12 students studied in 1991 were born in the early 1970s. Not only do these groups have different upbringings; they have different futures to prepare for. There seems to be some question about whether research can ever provide predictive information in this area of investigation.

In this study the term parent may have included biological, adoptive, guardian, or step-parent as long as the student was currently living with the parent. Non-parental role model types were defined as relatives, teachers, adult friends, peers, or other people.

Hypotheses

> 1a. Parents would be identified more often than other types as the primary decision-making role model.
>
> 1b. When subjects chose a parent as their primary role model:

  i) males would be more likely choose their same-

    sex parent

  ii) females would be equally likely to choose

    either parent.

1c. Females were predicted to be more likely to choose

  a non-parental role model.

Parental Education

If parents are strong role models, parental
characteristics and behaviours would most likely effect the
quality of the learning opportunity. The next two sections
deal with parental education and behaviors. Perceived
decision-making environment is used as a measure of behavior
the student has observed. Since career decision making is a
conscious cognitive task, it is assumed that students must
be aware of the role model set by their parents in order to
take advantage of the observation within the social learning
model.

Parental education level becomes a characteristic of
the parent. Higher levels of education are likely to be
associated with more logical and analytical thinking styles
which would be observable by the parents' children. A
number of studies support the connection between parental
education and their children's career development.
Hautamäki (1986) tested a model in which parents were viewed
as role models of activity, social class, and educational
attainment. Significant positive correlations were found

between the 11- and 12-year-olds' voluntary learning and parents' educational level. Goodale and Hall (1976) found that having parents with different levels of education resulted in uncertainty in college and career plans. Betz and Fitzgerald (1985) indicate that female career orientation is linked more strongly to their fathers', rather than their mothers', educational level. That is, as the father's educational level increases (regardless of the mother's education) so does the daughter's career orientation and educational aspirations.

Hypotheses

2a. Level of parent's education would be positively related to the student's decision-making skill level (SDMS and CDI-DM).

2b. Level of the chosen parental role model's education would be positively related to the student's decision-making skill level (SDMS and CDI-DM).

2c. SDMS and CDI-DM scores of females would be positively related to father's educational level if a parent was chosen as the role model.

Parental Behaviours

Parental behaviours are observed by their children. Parents are continuously making decisions about the family and about their own lives. They also help their children make decisions. These decision-making activities provide

opportunities for children to observe the processes and the outcomes.

Within the social learning model it is necessary for the observer to be able to see the process and its outcome for associative learning to occur. Also, the observer must retain the learned information until he or she has the opportunity to use it. This sequence of events requires a high level of cognitive activity. The observer must be attentive to the initial process; hold that information until the outcome is apparent; draw conclusions about what worked and what did not work; retain the useful information; recognize a situation in which the process would be useful; and re-enact the steps. This feat requires the observer to be attentive and cognisant of what he or she is doing.

The realization that this was a highly conscious process supported the development of a scale to determine the participants' perceptions of their home decision-making environment (DME) (See Appendix A). A four-question scale designed to assess decision-making environment (DME) is described in the Method section under Instrumentation. One study was found which used a similar approach to compare adolescent perceptions to outcomes. Goodale and Hall (1976) found that high school sophomores' career plans were positively related to their own perception of their parents' support and expectations.

In the same study, Goodale and Hall (1976) found a

difference between males and females in the effect of parent's background on career plans. Males reported more parental support and chose career plans more like their father's career. Females were significantly less affected by all parental background variables. Females perceived less parental support for their career plans than males did and made career plans which were more independent of their parents' educational and occupational backgrounds.

One way to assess parental support for decision-making skill development is to assess the decision-making environment at home. The ideal environment would include sharing decision-making process while making significant family decisions as well as individuals' decisions. These conditions would provide opportunities for instrumental and associative learning of decision-making skills.

In a good decision-making environment parents would be willing to share information with their children. Rational decisions cannot be made without information. Some information (values, expectations, goals, etc) is highly personal and difficult to share. One proposed way to validate the quality of decision-making environment is to assess fundamental sharing of personal information. At a very basic level this may be accomplished by comparing students who had knowledge of their parents' education and occupations with those who did not have this knowledge.

Hypotheses

3a. A positive association was predicted between scores on the decision-making environment (DME) scale and student decision-making scores (SDMS and CDI-DM).

3b. Males were predicted to have higher decision-making environment (DME) scores overall.

3c. When males and females had equal levels of decision-making environment (DME) no gender differences in SDMS or CDI-DM were predicted.

Method

Subjects

Participants were drawn from grade 11 and 12 students in the Public and Separate school systems in Calgary. Five high schools from different areas of the city were included in the sample. In each school three classes (two grade 11 and one grade 12) were selected by the teachers and/or principal. One of the grade 11 classes in each school was a Career and Life Management (CALM) class in the first week or two of the session. The other two classes came from various courses including Mathematics 20 and 30, English 30 and 23, Biology 30, Physical Education 30, and Religious Studies. None of the grade 11 students had completed CALM prior to participating in this study. Data were gathered in September and November of 1990.

The final sample included 367 students. Of these, 208

were grade 11s and 159 were grade 12s. There were 165 females and 202 males. The mean age was 16.4 years with a range of 15 to 19 years. Public and private systems provided 89 and 278 students respectively. Appendix B provides a full breakdown of the number of students by grade, gender, and school system.

Four hundred and ten students were originally approached for the study. Only 16 students refused to participate in the research. This low refusal rate was attributed to the collection of data in class groups where it is the norm for everyone to be working on the same thing. Also, most teachers encouraged their students to participate. Three students spoiled their answer sheets. A further 11 students were dropped from the sample because they chose not to complete enough of the questions to provide useable data (time was not a factor). Thirteen subjects were deleted because they were repeating CALM. The final sample retained for analysis was the 367 students mentioned above. This represents 89.5% of the students who were approached for the study.

<u>Materials</u>

Each student was given a pencil and a questionnaire package which included an identification number, informed consent form, long answer sheet, optically readable answer sheet, and the questionnaire booklet. Each of these parts will be explained below.

Six digit identification numbers were generated prior to data gathering. These numbers were designed and allocated so that subjects could be identified by school system, class, grade, or individual.

The student's informed consent form explained the requirements and rights of participants. One school required parental consent. The parental consent form contained the same information as the student's form as well as a brief outline of the kind of information that would be asked about the parents. Parental consent was obtained prior to data collection in the classes.

Most of the data was recorded on an optically readable data blank which was filled out by the students using the HB pencil provided. A long answer sheet was provided for five different questions which could not be coded for the data blank due to the diversity of possible responses.

Instrumentation

The questionnaire was made up of seven general sections (see Table 4.1) as follows: demographics, career decision making, decision-making steps, occupational actions taken, home decision-making environment, parents decision-making steps, as well as attitudes and experiences. All seven parts will be described below in order to give the reader an understanding of the total questionnaire. Questionnaire sections 1, 2, 3, 5, and 6 were used for this particular study.

1. The first part asked for demographic information about the students and their parents. Questions were designed to find out about the students' ages, grade, educational track, and participation in CALM. Students were also asked to write their career plans on the long answer sheet. Questions about the parents asked for the age and education of each parent. Parents' occupations were recorded on the long answer sheet.

Level of education was assessed on a five-point scale ranging from "did not complete high school" to "post graduate degree (e.g. Masters, Ph.D., medicine, law etc.)". Level of parental education was dependent upon the students' knowledge, however, students were given the option of saying that they did not know what education their parents had.

Table 4.1

Content of Questionnaire

---

1. Demographics of students and their parents

2. Career Development Inventory - Decision-Making Scale
    (CDI-DM)

3. Student Decision-Making Steps (SDMS)

4. Steps Taken in Occupational Planning (STOP)

5. Decision-Making Environment (DME)

6. Parents Decision-Making Steps (PDMS)

7. Attitudes and Experiences (throughout questionnaire)

---

2. The Decision-Making (DM) subscale from the school form of the <u>Career Development Inventory</u> (CDI) (1979) was included as the second part of the questionnaire. The CDI is a measure of career maturity and the decision-making subscale is designed to assess ability to make career decisions. The CDI-DM (described in Chapter 3) is used as a dependent measure of career decision-making skill in this study.

3. Student Decision-Making Steps (SDMS) was the third part of the questionnaire. The scale was developed by the present researcher to assess the extent to which a person uses a logical decision-making process. Students were asked to write down a recent major decision situation to help them focus as they worked through 13 questions designed to represent the seven steps of the decision-making process. The questions were developed from a review of several authors' models of decision making. Students reported a wide range of decisions. The most frequently mentioned were (a) high school course selection, (b) whether to get a job or not, (c) whether or not to participate in extra cirricular activities, (d) what career to choose, (e) what to do after high school, and (f) financial decisions. See Chapter 3 for more detail on the decision-making model being used in this study. The SDMS scale is included in Appendix A.

4. Fourth in the questionnaire was Steps Taken ,in

Occupational Planning (STOP), developed by Perron under the
direction of West (1984) for research commissioned by
Alberta Education. The scale determines the extent to which
students have engaged in behaviors thought necessary for
making informed occupational decisions. Students report the
frequency of their activity (never, once, two or more times)
for each item on a list of 25 data gathering behaviors.
This data was collected for a third study which was not part
of this thesis. Therefore, no further mention will be made
of this scale.

The next two sections of the questionnaire (5 & 6) were
included as measures of observed parental behavior. In
determining how to measure parents as role models there
seemed to be three possible approaches. One could
independently observe the parents, ask the parents what he
or she models, or ask the children what they see their
parents doing. Typically, the social learning model is
applied to behaviors such as violence followed closely by a
consequence. In this type of study it seems reasonable to
measure behavior of the role model since the behavior is
fairly discrete and it is easy to agree on what the learner
saw. On the other hand, in observing a series of skills
which make up a cognitive process like decision making, it
is much more difficult to agree upon what the learner saw.
In addition, outside of the laboratory, it is more likely
that the learner could have been distracted from the

observation. For these two reasons it made sense to ask the students to report what their parent's behaviors were. The same approach was used by Goodale and Hall (1976) in their assessment of the level of parental involvement in educational and career planning.

5. For the purposes of this study, decision-making environment was defined by four questions. These questions were designed to determine the extent to which parents were providing opportunities for their children to observe them making decisions. Responses to these questions were coded in a manner which gave the highest score to students who were involved in decision making related to their own as well as family life. The coding key for this scale is presented in Appendix A.

Pearson correlations were used to evaluate the association between the DME and student knowledge of parental education and occupation; variables which suggest whether or not parents shared information about themselves with their children. Significant correlations (see Table 4.2) between DME and knowledge variables provide convergent validity for DME. DME was positively correlated with knowledge of mother's occupation (r (366) = .15, p<.01) and father's occupation (r (366) = .16, p<.01). DME was also positively correlated with knowledge of mother's education (r (366) = .14, p<.01) but not with father's education which did not reach significance at an alpha level of .01.

Table 4.2

<u>Correlations Between Knowledge of Parents and DME</u>

	Knowledge of:			
	Father's Education	Mother's Education	Father's Occupation	Mother's Occupation
DME	.09**	.14*	.16*	.15*

<u>n</u> = 366, *<u>p</u><.01; **<u>p</u><.05

6. The sixth part of the questionnaire was the
Parent's Decision-Making Steps (PDMS). This scale is a
parallel form of the Student Decision-Making Steps (SDMS)
form. Wording of the steps was changed from first person to
third person to fit the observer role students were asked to
take. Instructions asked students to write down a decision
situation faced by the parent chosen as the student's
decision-making role model. Students were asked to decide
if their parents used each step in the indicated decision
situation. Responses for this scale included three
alternatives; "yes", "no", and "I do not know". A factor
analysis of this scale's data suggested that students had
over estimated their parents' skill. This data was not
pursued further.

7. Attitude and experience items were dispersed
throughout the questionnaire. Some of the questions were
included, but not used since more sophisticated analyses

were not undertaken. Other questions were used to select the sample for specific analyses.

All students completed the questionnaire sections in the order indicated above. To ensure that responses to the CDI were not contaminated by exposure to the rest of the questionnaire, it was given immediately after the demographic section. The SDMS and the PDMS were separated as much as possible since they are so similar. It was also felt that the SDMS should precede the PDMS so that students would not report their own behavior in comparison to their parents' behavior. These considerations determined the present organization of the questionnaire.

The questionnaire was piloted on 11 grade 11 and 12 students. Participants were asked to time themselves and to record any concerns or questions they had about the questionnaire. Students took between 35 and 55 minutes to complete the questions. From this information it was determined that school classes commonly running 65 to 75 minutes would provide adequate time to complete the task. Response by the pilot subjects resulted in changes to the wording of some questions but no major changes to the format or focus of the questionnaire.

Procedure

Data was gathered from entire classes in the classroom. Questionnaire packages were prepared ahead of time so that each student received all of the materials required and an

identification number. At the beginning of the session the researcher explained, with the aid of posters, the task and the rights of participants. Questionnaire packages were then handed out and specific instructions given for their completion. A full set of instructions can be found in Appendix C. Students were permitted to ask questions at any time during the session.

Students choosing not to participate could refuse by not completing the informed consent form. Usually, the teacher required students to stay in the classroom to work on something else if they were not participating.

Students were given the entire class to complete the questionnaire. Those finishing early were asked to work quietly on something else until everyone was finished. When all students were finished the class was thanked for their participation. The class was then turned back over to the teacher.

Results

Each hypothesis will be dealt with in order of presentation in the introduction of this chapter. Since repeated correlations were used, a per hypothesis alpha level of .01 was adopted to reduce possibility of false statements of significance.

Hypothesis 1a

In an absolute sense, parents were, as predicted, identified more often than any other type of decision-making

role model (See Table 4.3). However, a Chi Square test indicated that parents were not chosen significantly more often than all other groups combined. A Chi Square equivalent to the Tukey B was used for a series of paired Chi Squares comparing parents to each other role model group. This analysis identified three significant differences when parents were compared to teachers (χ^2 (1,116) = 35.31, $\underline{p}$<.01), others (χ^2 (1,133) = 16.61, $\underline{p}$<.01), and adult friends (χ^2 (1,135) = 15.00, $\underline{p}$<.01). Relatives and peers were not chosen significantly less often than parents. As a result of this finding, further analyses of parental role models were confined to parents who were actually chosen as the preferred role model.

Table 4.3

Frequency Distribution of Gender by Type of Role Model

	Type of Decision-Making Role Model Chosen					
	Parents	Relative	Teacher	Adult Friend	Peer	Other
Males	51	38	14	21	44	27
Females	39	23	12	24	44	16
Totals	90	61	26	45	88	43

n=353

Hypothesis 1b

A Chi Square test was used to determine if students, who selected a parent as their strongest decision-making

role model (n = 80), were more likely to choose their same-sex parent (see Table 4.4). Males chose their fathers more often (51.2%) than they chose their mothers (48.8%) as decision-making role models. This difference was not found significant in a Chi Square test. Females chose their mothers more often (59.5%) than their fathers (40.5%). This difference was also not significant. The data were analyzed for differences between those choosing and not choosing same-sex parents. This comparison was nonsignificant as well. The percentages do indicate a slight trend toward same-sex role models for both males and females.

Table 4.4

Selection of Parental Role Models by Gender

	Parental Role Model Chosen		
	Father	Mother	Totals
Males	22 (51.2%)	21 (48.8%)	43
Females	15 (40.5%)	22 (59.5%)	37
Total	37	43	80

Hypothesis 1c

Females were not more likely than males to choose a "non-parental" role model. A Chi Square test was used to

compare observed frequencies with expected frequencies in a gender by type of role model crosstabulation (See Table 4.5). A Chi Square compared parents to each other category and with parents compared to all other categories together; no significant differences were found with either analysis.

Hypothesis 2a

A positive relationship between parents education and SDMS and CDI-DM was predicted. When males and females were analyzed together, mother's education was not significantly related to either variable. However, there was a significant positive correlation between the father's education and decision-making skill as measured by the SDMS (r (67) = .29, p<.01) but not by the CDI-DM. When education was translated from the five point scale into years, the mean level of fathers' education was 13.8 years and the mode was 14 years. Mothers had a mean of 13.2 and a mode of 12 years of education. Compared to mothers, fathers had a significantly higher educational level (t (598) = 2.94, p<.01).

Hypothesis 2b

Contrary to the hypothesis, when the sample was controlled by using only data from students who identified parents as their strongest decision-making role models, education was not significantly correlated with student scores on SDMS or CDI-DM.

Table 4.5

Crosstabulation of Chosen Role Model by Gender

	Parent Role Model	Other Role Model
Males	51	144
Females	39	119
Totals	90	263

n = 353

Hypothesis 2c

The SDMS and CDI-DM scores of only those females who choose parents as their decision-making role models, were positively related to fathers' education level as predicted but the correlations were not significant.

Hypothesis 3a

It was hypothesized that DME scores would be positively associated with measures of decision-making skill. A significant positive correlation was found between scores on the DME and the SDMS (r (356) = .22, p<.01). The DME also correlated positively with the CDI-DM (r (366) = .19, p<.01). Having a more participative decision-making environment at home was related to higher scores on both measures of decision-making skill.

Hypothesis 3b

Contrary to the prediction, a t-test of gender differences in DME scores indicated that males (M = 9.26)

did not have significantly higher scores than females ($\underline{M}$ = 9.32).

Hypothesis 3c

No gender differences in decision-making skill were predicted at equal levels of DME. Data from the DME were divided into three groups representing low, medium, and high scores. An analysis of variance (ANOVA) (see Table 4.6) was used to detect gender differences. There were no gender differences in SDMS scores. However, a significant main

Table 4.6

Summary Table for Analysis of Gender and DME for CDI-DM

Source	ss	df	MS	F
Gender	73.49	1	73.49	7.17*
DME	191.88	2	95.94	9.36*
Gender X DME	12.91	2	6.46	.63
Explained	277.93	5	55.57	5.42*
Residual	3691.68	360	10.26	
Total	3969.61	365	10.88	

*$\underline{p}$<.01

effect for gender was detected in the CDI-DM ($\underline{F}$ (1,366) = 7.17, $\underline{p}$<.01) where the mean CDI-DM scores for males and females were 31.56 and 32.46 respectively. Since there was no gender by DME interaction (see Table 4.5), this means

gender related score differences were detected in the CDI-DM at similar levels of DME.

Discussion

This study looked at parents as role models for their children's career decision-making skill development. A corollary of this statement is that parental characteristics and behaviors form the basis of what the role model can contribute to the associative learning experience. Hypotheses were drawn from literature on parents as influencers of attitudes, preferences, and career plans. This attitudinal literature was used to guide the present research because very little skill-based research was found. That is, an exploratory approach was taken in this study.

The results only partially support the most important assumption in this investigation. Contrary to prediction, parents were not the only significant decision-making role models for grade 11 and 12 students. Peers and relatives were also chosen by a significant number of students. This research focused only on those students who chose parental role models. Evidence supports the notion that parents are important in the development of some children's career decision-making skills. Although parents have been shown to be influential in the attitudinal literature, this study suggests that skills may be learned from other people as well.

The literature indicates that peers have an effect on

career aspirations but they were not expected to be viewed as decision-making role models since peers would not have had the early influence that parents would have. Perhaps peers were selected as role models because they come from the same cohort and have the same social pressures and motivations. Peers would be more likely to have similar concerns and expectations. The strength of this relationship bears further investigation.

Similarly, relatives were not expected to have a significant influence on career decision making skills of the students due to a lack of regular contact. Data was not collected to establish whether or not the relatives chosen were living with the student. It is also conceivable that some students would form a close bond with a relative and would thus look to that person for examples and guidance in career decision making.

Predictions that males would be more likely to choose their fathers and that females would be more likely to choose a nonparental role model were not supported statistically. However, there was a trend for males and females toward choosing the same-sex parent as a role model. Further investigation may demonstrate clearly that the influence of same or different gender parents is important. It is also possible that gender identification may not be important in skill attainment.

Education was assumed to be an important characteristic

of the parents. Parents with higher levels of education may be better able to role model effective decision-making behaviors. Fathers' education did have a significant positive relationship to the students' decision-making skill scores. Since the mean and modal levels of fathers' education were higher than mothers' education, it would appear that parental education is an important factor to include in a model of children's decision-making skill development. However, there was no significant correlation when only chosen role models were analyzed. This distinction suggests that education is a factor but it may be suppressed by other variables.

Research on the female career orientations demonstrated a strong positive relationship to father's education (Betz & Fitzgerald, 1987). Career decision-making scores of females in this research were positively related to fathers' education level but the relationship was not statistically significant. This may mean that females look to their fathers for ideas about what careers to pursue but not necessarily for ways of making decisions.

Another way that parents were thought to influence the decision-making skills of their children was through the decision-making environment at home. Highly participative family decision making would provide more opportunities for the children to learn from their parents' examples. These assumptions were supported by the results. Decision-making

scores were significantly and positively related to decision-making environment. Quality of joint decisions was not assessed. The benefits of being involved in decision making appears to be independent of the decision outcome or quality. When parents and children work together to make decisions, the children appear to have a better command of the decision-making process.

Some of the attitudinal research reviewed suggested that female career decisions may not receive as much attention or be given as much importance at home as male decisions are. DME was tested for this type of bias. No significant gender differences were found in this variable. For female children, this suggests that parental need to provide guidance for career selection is treated independently from need to guide decision-making activity.

This result may be a function of the difference in the type of variable being studied ie. attitudes or preferences versus skills. Parents may view decision-making ability as a basic life skill required regardless of who you are and what you do. Career orientation, on the other hand, may determine how financially successful you are in life. How able you are to support yourself and your family?

Another possible reason for this finding may be the changing times. Career orientation research was done primarily in the 1970s when traditional values still supported the stay-at-home mother and father as bread

winner. Perhaps our society's values have changed enough in the 1990s to alter this difference in support at home. A research study comparing both support for career orientation and support for learning decision-making skills would be a useful follow-up to this study.

For this study it was assumed that there would be no gender differences in SDMS or CDI-DM if the analysis was controlled for level of DME. The results supported this assumption for SDMS but not for CDI-DM. At each level of DME, females had significantly higher CDI-DM scores than males had. The direction of this result is consistent with the normative data on the CDI-DM; females have consistently higher scores in both grade 11 and 12 (Thompson & Lindeman, 1981). These differences were attributed to gender differences in academic achievement. Assuming this explanation is the basis of the results in this study, a construct difference between SDMS and CDI-DM may explain the difference. Since SDMS was newly developed for this study, further investigation would be required in order to draw any conclusions. Another possibility is that SDMS is not sensitive to gender differences in decision-making skills. This possibility also requires more research with SDMS.

Overall, the findings of this research must be viewed cautiously since it was an exploratory study. However, the results seem to indicate that parental role models do influence their children's decision-making skills and that

characteristics and behaviors of the parents operate on the level of skill attained.

CHAPTER 5

INFLUENCE OF CALM ON STUDENTS' CAREER DECISION-MAKING SKILLS

The purpose of this section and the study reported herein, is to test one pair of propositions suggested by Krumboltz (1979) as part of his social learning theory of career decision making.

Proposition IIA3.

An individual is more likely to learn the cognitive and performance skills as well as the emotional responses necessary for career planning, self-observing, goal setting, and information seeking if that individual has access to people and other resources with the necessary information.

Proposition IIB3.

An individual is less likely to learn the cognitive and performance skills as well as the emotional responses necessary for career planning, self-observing, goal setting, and information seeking if that individual has little or no access to people and other resources with the necessary information.

(Adapted from Krumboltz, 1979)

Career and Life Management Course

In the province of Alberta, Canada a body called Alberta Education oversees curricula for public and separate

schools at all levels from kindergarten through grade 12.
In 1988 Alberta Education made the course Career and Life
Management (CALM) compulsory for grade 11 students.

CALM was designed by representatives of Alberta
Education (1988), in response to the observation that
students leaving high school in Alberta were not prepared to
independently manage their personal lives and careers. The
need for deliberate attention to decision-making skills has
been recognized in the literature as well. In 1979 Charner
prescribed a need for program development to support
teaching of career decision-making skills. He said that the
program should "provide skill training in information
gathering and use, decision making, and self assessment. In
all cases theory or book knowledge should be combined with
hands-on exercises." Three basic components of career
decision making include knowing what information is needed,
getting that information, and using the information (Katz,
1979). According to Mitchell (1979), guidance programs
should be targeting self-evaluation and development of
decision-making skills. Beyth-Marom, Novik, and Sloan (1987)
emphasized the need for classroom instruction focused on
decision-making skills. They pointed out that the explosion
of information available today makes it imperative that
students know "how" to process information rather than
focusing primarily on "what" or the content available.

CALM designers felt that students would benefit from

"opportunities to develop and practice their generic skills in communicating, thinking, and dealing with feelings" within the context of learning about self management, well being, relationships, careers and work, and independent living (Alberta Education, 1988). Merging the generic skills with the content areas would provide an opportunity to integrate several concepts including awareness and understanding, decision making, rights and responsibilities, personal and social issues, sources of support, as well as choices and challenges (Alberta Education, 1988). The course focuses on learning processes and skills.

CALM covers a wide range of topics and skills. Decision making is a skill which is explored within each content area and careers and the world of work constitute one of the topic areas. For the purposes of this research, participation in CALM represents an intervention designed, in part, to teach career decision-making skills.

Instructing Career Decision-Making Skills

Social learning theory of career decision-making skills assumes that skills can be developed through instruction (Unruh, 1979; Krumboltz et al., 1976). Krumboltz (1979) further adds that "individuals can acquire and perform sequentially related skills that build upon competencies already in their repertoires and enable them to complete tasks needed for making future career decisions." According to Tiedeman and Miller-Tiedeman (1979) career development

manifests itself in increasing awareness of one's career and the decisions that one makes. They propose that education can increase awareness of the particular career development stage in which one is functioning. Unruh (1979) maintains that career decision-making skills are a cognitive process and can easily be learned.

The literature provides clear evidence that decision-making skills can be taught by a number of different approaches. Using Super's vocational planning concepts Gribbons, Halperin, & Lohnes (1966) interviewed 110 boys and girls in grades 8, 10, and 12. They found that the positive effects of instructing career planning skills, persist over time. In other research conducted by Tiedeman and Miller-Tiedeman (1979) adolescents mastered the decision process in about 10-12 weeks of daily instruction. That is, students understood intellectually and technically what the decision process was. However, students had not developed, in that time, a sense of how their own career development was affected by the decision process. Egner & Jackson (1978) used the Career Decision-Making Questionnaire (CDQ) to measure career decision-making skills defined broadly as awareness, generation of alternatives, anticipation of outcomes, and action and choice assessment. They found a significant increase in the decision-making skills of grade 11 students involved in a program for exploring their own careers. Krumboltz et al. (1986) provided 90 minutes of

training and demonstrated significant increases in career decision-making skills of college students. Subjects who possessed a rational style benefited less from the training than those whose styles were not rational.

Process skills have been taught successfully in other disciplines as well. Effects of teaching process skills to science students were examined by Walkosz and Yeany (1984). They found significant improvements in the skill levels of all experimental subjects. Providing a strategy and practice at solving mathematics problems increased skill levels in nine- to ten-year-olds (Schunk & Gunn, 1986). Nelson (1984) focused on assessment of health decision-making skills in adolescents. It is evident from this literature that process skills and decision-making skills, in particular, do lend themselves to successful instruction. In contrast, Yeany, Yap, and Padilla (1986) reviewed the cognitive skills literature and found no reports of instruction permanently increasing Piagetian type cognitive skills in students from grades 3 through 12.

The expected outcomes of teaching career decision-making skills are also offered by the literature. According to Krumboltz (1979) "The generalizations and skills which develop as a result of many learning experiences lead to certain behaviors relevant to career decision making." That is, career decision-making skills lead to actions which further the decision process. Borgen, Layton, Veenhuizen,

and Johnson (1985) reviewed studies and found a significant long-term effect of career decision-making skill instruction.

Gender Issues

Since the occupational choice literature is replete with gender differences it seemed reasonable to expect gender differences in career decision-making skills as well. Betz and Fitzgerald (1987) found a number of studies which suggest that sex-typing results in the use of different schemata for processing information. Harren et al. (1979) used a cognitive complexity variable in their study of career choices. This variable was similar to the listing and using of criteria in decision making. Males and females demonstrated lower cognitive complexity (fewer dimensions) when evaluating appealing occupations and more dimensions when evaluating disliked occupations. For example, women scored lower on cognitive complexity when they were evaluating traditionally female occupations compared to men rating the same occupations. Walkosz & Yeany (1984) found that female college students performed science process skills equally as well as males even though their measured cognitive development was lower. Cognitive reasoning was also uncorrelated with ability to increase process skills. The study does not indicate how cognitive development was measured. (It is important to remember that gender differences in Kohlberg's moral development theory were

seriously challenged by Gilligan (1982). Gender differences may be due to gender bias in the measurement instrument not the characteristics of the person being assessed.)

Krumboltz et al. (1982) studied men and women in a community college. Females benefited more from 90 minutes of rational decision-making training than did males. The authors offer many possible reasons for this difference but caution that the study was exploratory. Although the literature supports gender differences, there is no consensus about the conditions under which such differences would be found.

In order to test the effects of CALM on career decision-making skill two central hypotheses have been formed along with one associated gender difference hypotheses.

<u>Hypotheses</u>

1a. There will be a significant difference in the career decision-making scores (SDMS and CDI-DM) of students who have and have not taken the CALM course.

2a. Students' career decision-making scores (SDMS and CDI-DM) will increase as a result of participation in CALM.

2b. The increase in the mean score (SDMS and CDI-DM) for females will be significantly greater than the increase in the mean score for males.

Method

Subjects

Grade 11 students used in this experiment were drawn from the larger sample described in Chapter 4. Entire classes participated in the study. Since timetabling was controlled by the school, students were not able to self select into any particular class. CALM is a compulsory course for all Grade 11 students. Therefore, the sample as a whole and the CALM sample specifically were assumed to be representative of grade 11 students in general.

In each school, one of the grade 11 classes was a CALM class in the first week or two of the session. Students not currently taking CALM came from various Grade 11 courses including Mathematics 20, English 23, and Religious Studies.

The study was carried out between September, 1990 and January, 1991. All schools were on a semester system with classes beginning in September and February. In some schools CALM was offered twice per semester. Therefore, CALM students were pretested at the beginning of either the September or November session. Non-CALM students were pretested at approximately the same time as the CALM students in each school. Posttesting of CALM and non-CALM classes was carried out at the end of January, 1991.

The pretest sample included 208 grade 11 students (see Appendix B). CALM and non-CALM classes accounted for 91 and

117 students respectively. There were 90 females and 118 males. Ages ranged from 15 to 18 years with a mean of 15.9 years. Sixty-one subjects came from the public system; 147 from the Catholic system.

The method section in Chapter 3 contains information about students who were dropped or declined to participate. Students who were repeating CALM were not included in the sample. No one refused to complete the posttest questionnaire.

The posttest included 99 of the original Grade 11 pretest subjects (see Appendix B). Since some of the pretest classes were not able to give up the second class, the posttest sample was reduced. Of these, 69 had been taking CALM and 30 had not yet taken the course. There were 63 males and 36 females.

Materials

The same materials were used in the pretest session, of this experiment as were used in the parent study in Chapter 4.

At the posttest students received the same questionnaire with instructions to complete only the highlighted sections leaving the rest of the questions blank. The highlighted questions included the CDI-DM, SDMS, STOP scales as well as questions 14 and 102. Students were also given an optically read answer sheet and an HB pencil. There was no long answer section or informed consent form

since this information was retained from the pretest.

Procedure

Pretest procedure was identical to the procedure outlined in the parent study in Chapter 4. The same grade 11 students were used for both studies.

CALM was offered as a three credit course in all schools surveyed. In some it was offered three days a week over five months. In other schools it was offered every day for two and a half months. In each case students received the same overall number of instruction hours. No significant differences in CDI-DM or SDMS were detected as a result of the different lengths of the presentation.

Questionnaire packages were prepared ahead of time so that each student again received all of the materials required and an identification number. At the beginning of the posttest session the researcher thanked the class for its earlier participation, explained the task and reminded participants of their rights. Questionnaire packages were handed out and specific instructions given for their completion. A full set of instructions can be found in Appendix C. Students were permitted to ask questions at any time during the session.

Students choosing not to participate could refuse by not completing the questionnaire. Usually, the teacher required students to stay in the classroom to work on something else if they were not participating.

Students were given the entire class to complete the questionnaire. Most required no more than 30 minutes to finish the questions. Those finishing early were asked to work quietly on something else until everyone was finished. When all students were finished the class was thanked for its participation and turned back over to the teacher.

Results

Hypothesis 1a

The data did not support the prediction of a significant difference in posttest scores between groups which had CALM and those which had not. However, a t-test of between-subject differences in SDMS scores revealed a significant difference (t (93) = -2.39, $p<.05$) in the pretest SDMS scores of CALM (M = 20.26) and non-CALM (M = 21.67) classes. There was no interaction between the CALM and non-CALM groups.

There were no between-group treatment effects of CALM on CDI-DM.

Hypothesis 2a

It was hypothesized that participation in CALM would increase decision-making skill level. A comparison of pre- and posttest scores within subjects indicated a near significant increase in the SDMS scores of CALM students but no effect on CDI-DM

Hypothesis 2b

It was predicted that participation in CALM would

increase decision-making skill scores of females more than it would males. There were no gender differences in SDMS or CDI-DM scores between the pretest and posttest.

Discussion

This study began with two propositions which suggested that the presence or absence of people and resources with the proper information would affect decision-making skill development. CALM provides teachers, guest speakers, books, and techniques brought together precisely for this reason. This experiment was designed to measure the effects of CALM on decision-making skill.

It was assumed that the sampling procedure would produce two similar groups for pretesting but a significant difference in SDMS scores was found between CALM and other grade 11 students. There was no significant difference between groups at the posttest while within-subject score increases only approached significance. These findings are suggestive. However, since there was no interaction between groups, there is little support for the effectiveness of CALM in raising SDMS scores.

The lack of positive results may be due, in part, to the research design, the course itself, or the students. Firstly, the study enlisted CALM students from five schools and, therefore, different teachers who had diverging styles and emphases. A follow-up study should at least focus on one school or perhaps one teacher. It may also be useful to

assess the development of each decision-making step rather than the process as a whole.

Secondly, CALM has only been taught for two years and is, perhaps, too new to be fairly assessed. Research done after the course has been refined may produce better results. In addition, the course highlights a number of different living skills so it is also possible that basic decision making and/or career decision making is not given enough instruction time.

Thirdly, students of this age have had very few opportunities to make career decisions and follow the process through to the consequences. In this sense, their learning may be incomplete and perhaps their ability to grasp the full process is thus impaired. This possibility delineates a difference between the instruction of science process skills (referred to in the introduction) and career decision-making skills. In science experiments the results are immediately apparent. It may take years to get feedback on career decisions.

Alternately, lack of change in students' skills may be associated with identity development as described by Marcia (1966). In his early stages of foreclosure and diffusion, individuals are not likely to make decisions about the future as a result of indifference or withdrawal. Later, in moratorium, Marcia's third stage, inactivity is due to identity crisis.

In conclusion, CALM provides people and resources with information thought useful in instructing career decision-making skill. However, this study did not demonstrate a significant effect of CALM. Further research should be done to rule out possible design, instruction, and/or subject factors which may have affected the study. Research into identity development and its effect on decision-making skill development would also be instructive.

CHAPTER 6

OVERALL DISCUSSION

The social learning theory of career decision making submits that development of career decision-making skill is facilitated by instrumental and associative learning. This research looked at parents and CALM as variables which provide learning opportunities for young people.

It was proposed that parents, as role models of career decision-making skill, would have a significant effect on the skill development of their children. The study did not attempt to determine the unacknowledged effect that parents may have on their children. However, parents were not the only role models identified by students. Peers or relatives were important for some participants. It appears that skill development may be influenced by a wide range of people.

The study focused on two ways in which parental characteristics and behaviors may have influenced the quality of the role model. Parental education and the perceived decision-making environment at home were both significant factors in decision-making skill scores. Fathers' education was positively related to career decision-making skill. In addition, being involved in decisions at home was associated with higher scores.

Parents have the opportunity to stimulate associative learning through the role models they set and instrumental learning by involving their children in decision making at

home. Parents may be a strong factor in the career decision-making skill development of some children. Other children may be influenced by other types of role models with whom they regularly interact. It may be useful to study the amount of time and/or the type of activities undertaken with role models.

Literature which has reported effects of parents on their children's careers has focused primarily on attitudinal factors. In spite of some unexpected findings this exploratory research demonstrates an association between parental role models and skill development. Finding support for this relationship may represent a significant contribution to the literature if it stimulates further study. Knowledge of how decision-making skills are learned would aid career counsellors in taking a family approach to career development.

CALM also provides opportunities for both associative and instrumental learning. Results of this study were suggestive but did not conclusively support the effectiveness of CALM. CALM does include the components which the theory suggests would enhance career decision-making skill. Therefore, it would be worthwhile to pursue this connection further.

The research thrusts taken in this thesis provide encouraging preliminary support for Krumboltz' theory. The focus on skills as well as knowledge is a practical

approach, particularly when occupational alternatives are changing as rapidly as they are today. Anyone embarking upon a new career or changing careers requires some method of organizing and managing the profusion of information available to them. Young people, specifically, are disadvantaged because they have so few life experiences to associate with the career information they obtain.

The theory states that making career decisions is the vehicle through which career development occurs. Control of one's future depends partly on how well the decision process is used to learn about self and the world of work. Awareness of the process makes it possible to make better immediate decisions. More importantly, it provides an opportunity to learn about one's self and about how to make better decisions in the future.

Krumboltz' theory does not include gender as a variable. Although other research has indicated gender differences in the learning of decision-making skill, this research found no significant differences. There were gender differences on the CDI-DM but there is some doubt that this scale actually measures skill and not knowledge.

Chapter 3 included a comparison of SDMS and CDI-DM as measures of career decision-making skill. It was suggested that CDI-DM's focus on content and simulations did not assess one's ability to independently manage the decision process. SDMS assesses use of decision-making steps in a

real decision-making situation. SDMS and CDI-DM were treated as dependent measures in both studies. A comparison of the results from all hypotheses produced one case in which different results were found. Gender differences in CDI-DM but not SDMS were detected across all levels of DME. This discrepancy between the two scales may indicate a construct difference. Females normally obtain higher scores than do males on the CDI-DM. This difference has been attributed to differences in academic achievement. SDMS, as a measure of process rather than knowledge, may not be influenced by academic ability. This comparison of SDMS and CDI-DM provides some support for the notion that simulations and content do not fully assess ability to manage the decision-making process. Investigation of this difference is important for effective individual assessment and for design and evaluation of courses teaching decision-making skills.

This research has raised some important questions for future research. Firstly, more should be known about how children learn processes from their parents as role models. The decision-making environment at home seems to be particularly important. Secondly, measurement of decision-making skill must differentiate between having knowledge of the process and being able to manage the process.

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APPENDIX A

Student Decision Making Skill (SDMS)

Questions and Scoring Key

For questions 40 - 52, think of a major decision you made in the past year. <u>Write</u> what you had to decide on the long answer sheet.

Below are some general steps that have been found effective in making important decisions. Using the following scale, indicate whether or not you used each step in making the decision you wrote down.

     1)   yes, I used this step
     2)   no, I did not use this step

40. Checked for clarity about what the decision goal or objective was.

41. Assessed the impact of not making a decision.

42. Gathered more information to be sure all the important factors in the decision were identified.

43. Identified things which limited my choices.

44. Listed the factors which were important in the decision.

45. Spent time trying to think of as many possible solutions or opportunities as I could.

46. Listed the alternatives and/or opportunities which may have fit my goal.

47. Checked each alternative against my list of important factors.

48. Placed the alternatives in order according to how well they satisfied the factors.

49. Thought of any risks which may have been associated with each alternative.

50. Made a choice based on my evaluation of the alternatives.

51. Made a plan to implement my decision.

52. Checked to see how well the outcome matched the original goal.

SDMS Scoring Key

SDMS SCORING CODE: (1=2) (2=1)

This scale produces a range of scores from 13 to 26. A score of 13 indicates no steps were used and a score of 26 means that all steps were used.

Decision Making Environment (DME)

Questions and Scoring Key

79. Who makes the major decisions in your family?
    1) Father
    2) Mother
    3) Father and Mother together
    4) whole family

80. To what extent do you make your own <u>major</u> decisions?
    1) I always make them <u>without</u> my parent's input
    2) I make them <u>with</u> my parent's input
    3) Sometimes I make my decisions and sometimes my parents make them.
    4) My parents make them <u>with</u> my input
    5) My parents always make them <u>without</u> my input

81. Have your parents ever talked with you about how decisions are made; explaining the steps you might follow to make a choice?
    1) yes
    2) no

82. Do your parents involve you in family decision making?
    1) always
    2) usually
    3) sometimes
    4) seldom
    5) never

DME Scoring Key

Question Number	Scoring Code
79	(1=1) (2=1) (3=2) (4=3)
80	(1=1) (2=3) (3=2) (4=2) (5=1)
81	(1=2) (2=1)
82	(1=5) (2=4) (3=3) (4=2) (5=1)

This coding produces a range of scores from 4 - 13 where 13 represents a highly participative decision making environment.

APPENDIX B

Demographics of Students Used in the Parental Role Model
Study

		Schools		
		Public	Catholic	Total
Grade 11	Males	38	80	118
	Females	23	67	90
Grade 12	Males	19	65	84
	Females	9	66	75
Total		89	278	367

Demographics of Pretest Students Used in the CALM Study

		Schools		
		Public	Catholic	Total
CALM	Males	21	32	53
	Females	12	26	38
NonCALM	Males	17	48	65
	Females	11	41	52
Total		61	147	208

Demographics of Posttest Students Used in the CALM Study

		Schools		
		Public	Catholic	Total
CALM	Males	20	25	45
	Females	9	15	24
NonCALM	Males	10	8	18
	Females	6	6	12
Total		45	54	99

APPENDIX C

PRETEST PRESENTATION TO STUDENTS

Please leave the questionnaire package turned over on your desk for now. I will explain its contents in a few minutes.

My name is Jan Dixon. I am a graduate student at the University of Calgary. I am working toward a Master's degree in psychology.

In my thesis I am investigating how career decision making skills and behaviors are influenced by our environment and our experiences. My decision making questionnaire will ask about you and your parents. Decision situations will be presented for you to respond to.

If you choose to participate in this research, you will be completing a questionnaire today. It will take about 50 minutes to complete all 96 questions. You will record your answers on a computer scoring sheet using the pencils I have provided. Some of you may be asked to repeat part of the questionnaire at a later date.

As participants in a scientific study you have some special rights of which I must inform you.

1) You are under no obligation to participate in the study. Your participation must be voluntary
2) You may withdraw from the study at any time without penalty.
3) You may choose not to answer a specific question.
4) Your responses will be held in confidence by me. No one but me will have access to the questionnaires. Results of the research will be reported as averages for each group.
5) There are no risks associated with participation in this study.
6) You may request a summary of the results of this study or you may review the copy which will be filed in the school library.

Are there any questions?

At this time, I will ask those of you who will not be participating in the study, to leave the room/sit quietly while the others answer the questions.

Arrangements have been made for you to go to room
_____. Please leave the questionnaire package on the desk when you leave.

Thank you for listening to my introduction.

For those of you who have chosen to participate I thank you for your valuable contribution to my research.

Turn your questionnaire package over and pull out the insert. I will go through each part to explain its purpose.

Firstly, you will find a small slip of paper with an identification number and a space for your name. Clearly print your name in this space now.

Next is a sheet with University of Calgary letterhead. This sheet, when signed by you, will indicated that you knowingly volunteered to participate in the study. Read this sheet _now_ and sign it if you understand it and are willing to be in the study. I will add my signature after class today.

Next is a long answer sheet. You will be referred to this sheet twice in the questionnaire. Follow the instructions given at that time. I will ask you to complete questions 103 - 105 just before you start the questionnaire.

The fourth page is your computer answer sheet. I'm sure you have all filled out forms similar to this one. However, I would like to point out three unique things about this form.

a) The first 6 rows have already been filled in with your identification number.
b) Therefore the first question in the questionnaire is number 7 which asks about your age. A student who is 17 years old would completely darken the #3 circle.
c) Note that the first answer space is a zero. You should only mark the zero if you are refusing to answer that particular question.

Finally, you have the questionnaire booklet. Please do not make any marks in the booklets as they will be reused.

Before you begin, I want to be sure you understand some important terms in the questionnaire.

Parents: Includes guardians, biological, adoptive, or step parents

Major decision: Example: Should I stay in school or drop out

Career: All of the roles you play in your life

Occupation: The type of job you do in your worker role

You may work through the questions from beginning to end without stopping. Answer the questions in order. If you are willing to answer a question, but do not know the answer for sure, guess.

Be sure your responses are recorded beside the proper question numbers on the answer sheet.

If you have a question please feel free to ask me at any time.

When you are done, sit quietly and wait for the other participants to finish.

Are there any questions before we begin?

WHEN THE CLASS IS FINISHED:

If you would like to receive a hand-out on decision-making steps, please bring your booklet and answer sheet to me. If you do not want the hand-out, leave your booklets and answers on this desk.

Thank you for your participation.

INSTRUCTIONS FOR POSTTEST

Thank you for participating in the first phase of my research. Your class is one of 8 special groups which have been selected to participate in the second and final phase as well.

The results of this research will be available to you through your school library. I have written my name and phone number on the board for any of you who may wish to contact me about the research or the results.

Today I will ask you to repeat a portion of the same questionnaire using the same type of computer scored answer sheet as you did before. Sixty questions from the complete questionnaire have been selected for this second round.

I remind you that your participation is voluntary, however, I encourage you to complete this second phase since the important information you gave me in the first round is not complete without this posttest.

Your answer sheet has been marked with your ID number and the deleted questions. As you go through the questionnaire, do only the questions highlighted in yellow. Be careful to put your answers neatly in the correct place on the answer sheet.

You will probably remember many of the questions. Do not attempt to duplicate your previous answers. Please respond according to how you think and feel today.

You may work through from beginning to end without stopping. When you are finished, place your answer sheet inside the booklet and return the booklet and pencil to me.

Are there any questions?

If you have questions as you work, please feel free to ask for help. Please work quietly at your desk until everyone is finished.

I will call the names of the people who have been selected to participate. Please come forward and pick up your questionnaire. You may begin immediately.