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Career Development of First-Year University Students: A Test of Astin's Career Development Model

by

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ABSTRACT

Work has been a pervasive part of human existence. Career development theorists have sought to offer different speculations about the meaning of work in people's lives. Some suggested that work allowed individuals to fulfill certain basic needs, others believed that work was an expression of self and personality. An underlying theme in these theories is that the salience of work in people's lives is important. Although these and other theories/models have made substantial contributions to the understanding of career decision making and career development, the majority of these theories are based on the experiences of white, middle-class males. Researchers have questioned their relevance to other groups such as women, and individuals from different cultural, ethnic, and/or socioeconomic background.

Theories related to women's career development began to emerge in the early 1980's. These theories improved on earlier theories by taking into account variables which influence women's career choices, aspirations, and work behaviors. An example is Astin's (1984) sociopsychological model of career choice and work behavior which emphasized the significance of both psychological factors and cultural-environmental factors. Astin (1984) contended that men and women share a common set of work motivations. What differentiates their work expectations and career outcomes is the mediating effect of other variables such as work expectations, sex-role socialization, and structure of opportunity.

Using Astin's model as a theoretical framework, one purpose of the present study

is to examine how the four constructs in Astin's model operate in the choice of career/college major of a selected sample of first-year university students. A total of 253 first-year university students completed a survey instrument based on Astin's model. The results of 2x2 MANOVAs indicated significant gender and language differences on some of Astin's four factors. The results of Pearson product-moment correlations indicated that the four factors in Astin's model operate quite differently for different sub-groups of students. The results are discussed in terms of the developmental and cultural issues these students were facing. Implications for future research and interventions were also discussed.

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Chapter 1: Introduction

Context of the Problem

Work has been a pervasive part of human existence and philosophical questions on the meaning of work have been raised as early as the time of the ancient Hebrews and Greeks (Axelson, 1993; Engels, Minor, Sampson, & Splete, 1995). Frank Parsons (1909) presented the first conceptual framework for understanding individuals' career decision process. His approach assisted individuals to identify their aptitudes, abilities, and interests, as well as to develop an understanding of the world of work. He believed that a match between an individual's attributes and the conditions for success in selected fields, would result in greater work satisfaction and success. His emphasis on increasing the sense of work satisfaction and success of individuals has remained central to career development theory and practice (Brown & Brooks, 1990).

Since Parsons' work, a growing number of theories and models of career development and career choice have emerged. Career development theorists have sought to offer different speculations about the meaning of work in people's lives. Some suggested that work allowed individuals to fulfill certain basic needs (e.g., Astin, 1984; Roe, 1956); others believed that work was an expression of self and personality (e.g., Gottfredson, 1981; Super, 1951, 1953, 1963). An underlying theme in newer theories is that the salience of work in people's lives is important, which makes the study of career development all the more essential.

Although these and other theories/models have made substantial contributions to the understanding of career decision making and career development, they share some

common weaknesses. The majority of current theories were based on the experiences of white, middle-class males. Researchers have questioned their relevance to other groups such as women, and individuals from different cultural, ethnic, and/or socioeconomic background (e.g., Betz & Fitzgerald, 1987; Fitzgerald & Crites, 1980; Fouad & Arbona, 1994; Okocha, 1994; Perun & Bielby, 1981). Most career development theories also assumed that individuals are free to choose from among an array of alternatives which are available to all. Such assumptions ignore the social realities of special groups such as women and ethnic minorities (Okocha, 1994; Smith, 1983). The career development of these individuals may be constrained by such factors as prejudice, discrimination, and opportunity availability imposed by society's sociopolitical system (Griffith, 1980; Smith, 1983). Moreover, the majority of current theories represent a psychological paradigm. With rapid changes in the world economy, ecological systems, and family and social structure, these theories may not be adequate in explaining the complexities and challenges involved in the career development of diverse groups in the population.

Theories related to women's career development began to emerge in the early 1980's (e.g., Astin, 1984; Farmer, 1985; Gottfredson, 1981; Hackett & Betz, 1981). These theories improved on earlier theories by taking into account variables which influence women's career choices, aspirations, and work behaviors. For example, based on Bandura's (1977) work, Hackett and Betz (1981) formulated a model on career self-efficacy. They attempted to examine the processes involved in men's and women's career pursuits and their beliefs about achievement. Astin (1984) proposed a sociopsychological model of career choice and work behavior which emphasized the significance of both

psychological factors and cultural-environmental factors. These factors interact to influence career choice and work behavior. The four components in her model are: motivation, expectations, sex-role socialization, and structure of opportunity. According to Astin, work is important because it is able to fulfill certain basic needs such as survival, pleasure, and contribution. Astin (1984) contended that men and women share a common set of work motivations. What differentiates their work expectations and career outcomes is the mediating effect of the other three variables.

Astin contended that expectations are different for men and women because of their differential socialization experiences as well as their perception of the structure of opportunity. From Astin's perspective, opportunity structure is not static, but changes over time. As society changes, women and ethnic minorities are presented with more alternatives which in turn modify their career aspirations and work behaviors. To support this contention, Astin cited several examples of social change, such as advances in medical and reproductive technology and changes in economic trends and conditions. These larger social forces could explain the increasing participation of women and ethnic minorities in the labor force. Structure of opportunity is a distinctive feature of Astin's model. The inclusion of the construct is an improvement on previous theories in that it is able to conceptualize the forces shaping the career decision-making process of both men, women, and diverse groups in the population.

The Problem

It is interesting to note that since the publication of Astin's model in 1984, little research has been conducted to test its validity. This may be due to the fact that her model

lacks operational definitions of the proposed constructs and specific hypotheses (e.g., Betz & Fitzgerald, 1987; Brooks, 1990; Harmon, 1984), which makes empirical tests of the model difficult. It may also be attributed to the lack of theory-driven studies, a problem which plagues the career development literature (Fitzgerald & Rounds, 1989; Hackett, Lent, & Greenhaus, 1991; Phillips, Cairo, Blustein, & Myers, 1988). Despite the fact that studies on gender differences in career-related behavior are able to identify variables which influence the differential career choice and development of men and women (e.g., Gati, Osipow, & Givon, 1995; Larson, Butler, Wilson, Medora, & Allgood, 1994; Leso & Neimeyer, 1991; Leung & Plake, 1990), what seems to be missing is an understanding of how these variables operate to result in differential choices and decisions.

Rationale

Using Astin's model as a theoretical framework, the present study addresses some missing pieces in the career development literature. One purpose of the study is to examine how the four constructs in Astin's model operate in the choice of career/college major of a selected sample of first-year university students. It is speculated that Astin's four constructs will all be important, but will operate differently for students whose socialization and life/work experiences differ.

The focus of the study is on first-year university students in a Canadian university. There are several reasons to study this particular population. First of all, the volumes of literature and research studies published on college student development are done mostly with American students. With the changing demographics of university students, and an

increasing number of international students currently enrolled in Canadian universities, it is important to systematically study college student development in a Canadian context. Moreover, college is a period during which students prepare to assume life roles. One of the challenges that they face is to decide what careers they want to pursue (Drew, 1978). It is assumed that before students enroll in university, they already have some ideas as to which career they want to pursue, even if that plan is to leave options open and do more exploring. These ideas are presumed to be the results of several factors suggested by Astin such as evaluation of their own interests and aptitudes, socialization, and work and/or volunteering experiences.

In addition, the choice of college major is an initial step in students' career decision making. Since first-year students are "fresh" to the college environment, their choice is less influenced by the impact of college attendance and more by their motivation, expectations, and past socialization experiences. Thus, their experiences may help to validate Astin's model. Last but not least, the need for assistance with career planning and career choice has been identified as one of the most common concerns expressed by students (Conger, Hiebert, & Hong-Farrell, 1994; Erwin, 1996; Herr, 1992; Posterski & Bibby, 1988). In light of the pervasiveness of youth unemployment (Herr, 1992; Looker & Lowe, 1996), it is speculated that the present study will shed light on how to establish better linkages between education and career training. Researchers have proposed to integrate career training into academic training, both at the secondary level and tertiary level (Herr, 1992; Hiebert, 1993; Jarvis, 1995; Perry, 1994; Sharpe, 1996; Watts, 1995), but it is important to have some data suggesting it would be beneficial to do

this.

Overview of the Thesis

There are 5 chapters in this thesis. Chapter 1 has described the context for the study. Chapter 2 reviews the literature in career development and youth development, with special consideration for women and ethnic minority groups. Chapter 3 presents the methodology used in the present study. Chapter 4 presents the major findings of the present study. Chapter 5 discusses the implications of the findings as well as directions for future research studies.

Chapter 2: Literature Review

A Review of Traditional Career Development Theories/Models

Parson's Ideas and Influence

Frank Parsons (1909) presented the first conceptual framework for understanding an individual's career decision process. Impetus for the development of his ideas can be traced to a time when there was a need to better distribute workers across occupations during the emergence of the United States as an industrial nation. In order to maximize workers' satisfaction and success, and minimize employers' costs, Parsons advocated the idea of matching individuals with occupations. His approach assisted individuals to identify their aptitudes, abilities, and interests, as well as their understanding of the world of work. He believed that a match between an individual's attributes and the conditions for success in selected fields would result in greater work satisfaction and success. His emphasis on increasing the sense of work satisfaction and success of individuals has remained central to career development theory and practice (Brown & Brooks, 1990).

Parsons' ideas laid the foundation for the development of the trait-factor approach. There are four basic assumptions to the approach: (a) Each individual has a unique set of traits which is relatively stable and can be measured reliably and validly; (b) different jobs require different skills; (c) the choice of an occupation is straightforward, made by matching individual traits with job requirements; and (d) the accuracy of the match determines the likelihood of success and job satisfaction (Klein & Wiener, 1977). In short, career development is conceptualized as identifying the best match between an individual's skills and occupational demands.

One of the major criticisms of the trait-factor approach is its "test and tell" nature which is too simplistic. The approach's emphasis on matching individual attributes and environmental characteristics fails to account for the developmental process that occurs over the life span (Brown, 1990; Crites, 1969). An underlying assumption of the trait-factor approach is that career choice is a single event and that there is a single right goal for every individual (Herr & Cramer, 1984; Jones, Stefflre, & Stewart, 1970; Miller, 1974; Zunker, 1986). In today's world of work characterized by change, transitions, and diversity, the trait-factor approach may not be able to fully explain the complex processes involved in career development.

Since Parsons' work, a growing number of theories and models of career development have emerged. An extensive examination of each theory is beyond the scope of the present thesis. What follows is a brief overview of some of the major theories of career development to paint the context of the current investigation. These theories were selected because of their research potentials and promises towards a more comprehensive theory which will address the career development of women and minority groups.

Holland's Typology Theory

One of the most prominent figures in trait-factor theory is John Holland. Holland (1966, 1985a) suggested that most people can be categorized into one of six personality types, namely realistic, artistic, investigative, social, enterprising, or conventional. Each type reflects a distinctive manner in which individuals relate to the world and process information about the world. There are six corresponding environments, each of which is populated by individuals of the corresponding type (e.g., "realistic" environments are

dominated by people who demonstrate "realistic" traits). Holland's contention is that individuals flourish in environments which allow them to exercise their skills and express their needs. In other words, individual behaviors are determined by an interaction between personality and environmental characteristics. Holland's notions of congruence and consistency between an individual's personality type and the environment exemplify the emphasis placed on matching by the trait-factor approach.

Holland's personality types in particular, have generated much research. Evidence showed that the personality types were representative of the populations studied. More recent studies, which focused on testing the constructs of congruence, consistency, and differentiation, also yielded favorable results (see Weinrach & Srebalus, 1990, for a more detailed review). Furthermore, the instruments Holland developed, such as the Vocational Preference Inventory (VPI) (1985b) and the Self-Directed Search (SDS) (1985c), provide counselors with objective data about client personality types and personal characteristics.

Though the theory has practical utility, the suggested matching process is viewed as too simplistic and inflexible in explaining the complex processes involved in career decision making (e.g., McDaniels & Gysbers, 1992). Factors such as socialization, socioeconomic status, and availability of opportunity are shown later in this review to play significant roles in the career development process of women and individuals from minority groups.

Super's Developmental Theory

Donald Super is another prominent theorist whose work and ideas continue to influence the field of career development. One of the major theoretical contributions of

Super is his emphasis on the development and implementation of self-concept in the career development process (Super, 1951, 1953, 1963). The notion of translating one's self-concept into occupational terms helps to understand how people become what they are and how they make career decisions. For Super, the degree of satisfaction individuals attain from work is proportional to the extent to which they have been able to implement their self-concept in their occupation. Work/life satisfaction also depends on whether individuals find adequate outlets for their abilities, interests, values, and needs. Research evidence has suggested that self-concept and self-esteem play pivotal roles in the career development of women. Women with higher levels of self-esteem were found to be more likely to pursue nontraditional occupations, were more motivated to achieve, and were more committed to their careers (see Betz & Fitzgerald, 1987, for a review).

Another major contribution of Super is his adoption of a life-span developmental approach to career development (Super, 1980, 1990). A central component in this approach is the belief that career is not a one-point-in-time phenomenon, but rather people's careers unfold across time at different stages in their development. There are five stages in Super's theory: growth, exploration, establishment, maintenance, and decline. At each developmental stage, individuals are confronted with developmental tasks which are to be handled in ways most consistent with what they would want to be. In contrast to Holland who emphasized the "goodness-of-fit" between personality traits and environmental characteristics, Super asserted that individuals "recycle" through the developmental stages and make career decisions and "mini-decisions" along the way. In other words, they explore and re-explore their career options and re-establish their career

as they and/or situations around them develop. Career planning is seen as incorporated into life planning, both of which are continuous and life-long processes. As individuals today are faced with frequent life/career transitions, Super's notions of "recycling" and "mini-decisions" provide a more flexible and accurate perspective of the career development process than the trait-factor theory. It is conceivable that career counselling and career interventions will play a more significant role throughout the life span (Conger et al., 1994; Engels et al., 1995).

It has been increasingly recognized that career development involves one's life and concerns the whole person. Career development is to be understood within the ever-changing contexts of an individual's life (London & Greller, 1991; McDaniels & Gysbers, 1992; Phillips & Blustein, 1994). The Life-Career Rainbow as postulated by Super is such an attempt to understand a person's life and career from a more holistic perspective. According to the Rainbow, there are multiple life roles such as son or daughter, student, leisurite, citizen, worker, spouse, homemaker, parent, and annuitant or pensioner. The Rainbow visually depicts how the different life roles constitute a life career from birth until death. The importance of each of the major life roles varies throughout the life span (Super, 1990).

The concept of role salience is of particular significance in understanding individual career development today in which the nature of work and work ethic have changed due to trends such as globalization and corporate downsizing. Most workers may no longer find fulfilment and meaning in their work role. They need to learn how to find satisfaction and success in other life roles. Thus, counselors need to promote a

meaningful lifestyle (Marshall, 1983) and the importance of other activities such as leisure (Kelly, 1982; McDaniels, 1984, 1989). Compared to the trait-factor theory, Super's approach is more contemporary and comprehensive in explaining career development in today's world.

Though empirical studies have been conducted on Super's developmental approach, they were mainly focused on the male population. Osipow (1973) remarked that Super's developmental stages may not accurately describe women's career development. Moreover, Hackett and her colleagues (1991) pointed out that most of the studies were not conducted within the framework of Super's theory. Rather, Super's terminology was used as post-hoc justification. More research with diverse populations is needed to directly test the validity and applicability of Super's theory.

One exception is a recent study in which Ornstein, Cron, and Slocum (1989) directly tested Super's theory. They found that individuals at different developmental stages demonstrated different job-related attitudes, commitments, and behaviors. For example, individuals at the trial stages of their careers were found to be less committed, satisfied, and involved in their jobs than individuals at later developmental stages. This study can be a starting point for more theory-driven research on Super's approach.

Nevertheless, critics have repeatedly pointed out the lack of attention to economic and social factors as one of the major weaknesses of Super's theory (e.g., Hackett et al., 1991; Osipow, 1983; Skorikov & Vondracek, 1993). Its assumption of a fairly individualistic view of career decision making and equality in job opportunities may not have reflected the experiences of women and members of minority groups. In fact,

discrimination and stereotypes are known to affect the career development of these special groups (e.g., Brooks, 1990; Ihle, Sodowsky, & Kwan, 1996; Okocha, 1994; Scott & Hatalla, 1990). The role socialization processes played in the conception of self, which has been documented by other researchers (e.g., Cooley, 1964; Harter, 1988), also receives little attention in Super's theory. Socialization experiences can be expanding or restricting, and can influence an individual's beliefs of his/her ability and aspirations. The significance of socialization processes in individuals' career decision making and choices are elaborated later by theorists such as Gottfredson (1981) and Astin (1984). Thus, while Super's theory is an improvement over trait-factor approaches, it has not yet adequately addressed the career development of women and minority groups.

Krumboltz's Social-Learning Theory

Offering a different perspective, Krumboltz (1979) adapted a social learning approach to address the question of why individuals make certain career decisions and not others. In addition to individual characteristics, Krumboltz's theory also considers the impact of both sociological and economic factors, as well as their interaction in career decision making. In particular, Krumboltz maintained that career decision making is influenced by four factors:

1. Genetic endowment which includes such inherited attributes as race, gender, and physical appearance.
2. Environmental conditions including economic, political, social, and cultural forces.
3. Learning experiences.
4. Task approach skills resulting from the interactions of the above three factors. E.g.,

performance standards and work habits.

A distinctive feature of Krumboltz's theory is its conception of self-observation generalizations and world-view generalizations which can be used to explain individual differences in the career decision process. As a result of their past learning experiences, individuals make generalizations about their task efficacy, interests, and values. They also generalize their experiences to future events and other environments, such as the nature of various occupations. Self-observation generalizations and world-view generalizations may expand individual career options, but can also be unnecessarily restrictive. For example, a female student who believes that she is not good at mathematics is not likely to go into math-related professions. By the same token, individuals are not likely to pursue a career if they think opportunities are not available in the job market. Though these beliefs about oneself and the world of work may or may not be accurate, they tend to influence an individual's aspirations and their subsequent career choices.

Krumboltz's approach is able to shed some light on the complex processes involved in the career-related experiences of women and ethnic minorities. It is Krumboltz's (1979) contention that individuals are more likely to pursue an occupation if they are exposed to positive role models, job/training opportunities, and/or receive encouragement to engage in that occupation. These experiences conducive to career planning and development are likely to be limited in the experiences and socialization of women and ethnic minorities. This may explain why these special groups are more likely than individuals from the mainstream culture to restrict their occupational choices and underutilize their abilities and potentials (e.g., Betz & Fitzgerald, 1987; Brooks, 1990;

Coleman & Barker, 1992; Dunn & Veltman, 1989; Ihle et al., 1996, Okocha, 1994). In fact, it is documented that women are still segregated in certain fields such as elementary school teaching and social sciences while ethnic minorities such as Asians are segregated in fields such as engineering and computer science (e.g., Leong, 1993; Leung, Ivey, & Suzuki, 1994; National Science Foundation, 1994; U. S. Equal Employment Opportunity Commission, 1991). In addition to external barriers such as lack of role models, occupational stereotypes, and family/societal expectations, women and ethnic minorities also encounter internal barriers in their career development. Some examples are lack of confidence, low self-esteem, and fear of success and/or failure (e.g., Colemen & Barker, 1992; Davenport & Yurich, 1991; McBride, 1990).

Another distinctive feature of Krumboltz's theory is its increasingly applied focus (Hackett et al., 1991). The theory can be applied to the development of intervention programs such as assertiveness training, and teaching of problem-solving and decision-making skills. These programs could be of particular relevance to expanding the vocational repertoire of women and ethnic minorities.

It is obvious that Krumboltz's theory (1979) is an improvement on previous theories. However, the theory lacks empirical support (Hackett et al., 1991) and has been criticized as failing to account for behaviors after the initial career decisions are made (e.g., job change) (Brown, 1990). This oversight poses problems when applying the theory to the career development of women whose career paths are more likely then men's to be disrupted by child birth and other family obligations. Understanding women's decisions to postpone, abandon, or resume their careers may shed some light on

their unique career patterns. This oversight may limit the validity and applicability of the theory to today's world of work characterized by frequent life/career transition.

Critique of Traditional Career Development Theories/Models

Although these and other theories/models have made substantial contributions to the understanding of career development, they share some common weaknesses. The majority of these theories were based on the experiences of white, middle-class males. Researchers have questioned the relevance of these theories to other groups such as women, individuals from different cultural, ethnic, and/or socioeconomic background (e.g., Betz & Fitzgerald, 1987; Fitzgerald & Crites, 1980; Fouad & Arbona, 1994; Okocha, 1994; Perun & Bielby, 1981). The use of a white male norm as the baseline against which women and other diverse groups are compared is detrimental to the contrasted group. Those who are not white, middle-class men are thus likely to be viewed as deficient (McBride, 1990; Nickerson & Kremgold-Barrett, 1990; Riger, 1992; Yoder & Kahn, 1993).

As mentioned earlier, most of these theories also assume that individuals are free to choose from among an array of alternatives which are available to all. Such an assumption ignores the social realities of special groups such as women and ethnic minorities (Okocha, 1994; Smith, 1983). The career development of these individuals may be constrained by such factors as prejudice and discrimination imposed by society's sociopolitical system (Griffith, 1980; Smith, 1983). Moreover, the majority of career development theories represent a psychological paradigm. With rapid changes in the world economy, ecological systems, and family and social structure, psychological

theories may not be adequate to explain the complexity and challenges involve in women's career development. A broader theoretical base is thus needed.

A Review of Theories/Models Addressing the Career Development of Women

Theories/models related to women's career development began to emerge in the early 1980's. These theories/models improved on earlier theories by taking into account variables which influence women's career choices, aspirations, and work behaviors. In the following section, a review of four selected theories/models is presented. They are Hackett and Betz's self-efficacy theory (1981), Gottfredson's circumscription theory (1981), Farmer's multidimensional model (1985), and Astin's sociopsychological model (1984).

Hackett and Betz's Self-Efficacy Theory

Based on Bandura's (1977) work, Hackett and Betz (1981) formulated a theory on career self-efficacy. They attempted to examine the processes involved in men's and women's career pursuits and their beliefs about achievement. They believed that self-efficacy theory could explain the processes by which traditional gender role socialization influenced men's and women's self-referent evaluations in relation to career choices and behaviors. Two concepts of particular relevance are efficacy expectations and outcome expectations. These two concepts are elaborated below.

Efficacy expectations refer to an individual's expectations or beliefs that s/he can perform a certain task successfully. Efficacy expectations will determine whether or not a certain behavior will be initiated, the amount of effort to be exerted, and the persistence of behaviors in the face of obstacles. These expectations are developed through four

sources of information:

1. Performance accomplishments refer to successful performance of a given behavior. It is believed to be the most powerful source of strong self-efficacy expectations. For example, a student who performs well on a math test is likely to gain an increased efficacy expectation of his or her ability to solve math problems.
2. Vicarious learning refers to observing other people perform a behavior. For example, female students who observe a female model having a career in engineering or other science-related fields are likely to aspire to careers in these fields.
3. Verbal persuasion refers to encouragement from others that one can successfully engage in specific behaviors. For example, a student who receives encouragement from parents or teachers to do well in science subjects are likely to have increased self-efficacy in these subjects.
4. Emotional arousal refers to the level of anxiety with regard to the behavior to be performed. Students are likely to feel anxious before a test if they do not believe they can do well on it, and vice versa (Hackett & Betz, 1981).

It is through these four sources of information that individuals' efficacy expectations are acquired and/or modified.

Outcome expectations refer to individuals' beliefs about the consequences of performance. Similar to efficacy expectations, outcome expectations will also determine whether or not a person attempts to perform a certain task. For example, a female lawyer believes that she has the ability to perform the role of a senior partner in a law firm. Yet she is not likely to apply for the position if she believes that a male colleague is preferred

in the position by company decision makers.

Hackett and Betz (1981) maintained that differential socialization experiences of men and women could explain the differences in their career development patterns. The authors argued that women lack strong efficacy expectations in relation to career-related behaviors because they are less likely than men to be encouraged to develop their own career and have fewer female models who are successful. Thus, the self-efficacy theory is able to explain why some women do not fully develop their capabilities and talents in their career pursuit.

In a comprehensive review of career self-efficacy research, Lent and Hackett (1987) suggested that there is ample evidence to support the application of self-efficacy theory to understanding the complex processes involved in career development. More specifically, research has shown that individuals with high self-efficacy engage in more exploratory behaviors (e.g., Blustein, 1989), are more confident in career decision making (e.g., Luzzo, 1993; Solberg, Good, Fischer, Brown, & Nord, 1995), are willing to entertain more career options (e.g., Multon, Brown, & Lent, 1991), and more successful success at finding and staying in jobs (e.g., Kennett, 1996).

Although Hackett and Betz's theory has focused on the career development of women, it has the potential to be generalized to explain the career development of members of ethnic minority groups. Relatively speaking, women and ethnic minorities have fewer role models who are successful in various occupations. They also receive less encouragement and have fewer opportunities to pursue a career and/or high educational achievements (Betz, 1992; Coleman & Barker, 1992; Dunn & Veltman, 1989; Ihle et al.,

1996; Okocha, 1994). Thus, they may have low efficacy expectations regarding their ability to succeed academically or in a career. Their outcome expectations may also be affected by environmental contingencies such as the availability of opportunities, occupational stereotypes, and discrimination in the work place. It is thus not surprising that women and ethnic minorities tend to be segregated in certain fields and limited in their career choices (e.g., Barrett, 1987; Betz & Fitzgerald, 1987; Leong, 1993; Leung et al., 1994; National Science Foundation, 1994). Since these special groups are playing more significant roles in the work force, understanding of the career development of women and ethnic minorities has both theoretical and practical implications.

In sum, the application of self-efficacy theory elaborates the role socialization plays in the career choices and behaviors of men and women. Both efficacy expectations and outcome expectations are important concepts in understanding the career development of women. By extension, these two concepts can also be applied to the career development of ethnic minorities.

Gottfredson's Circumscription Theory

Gottfredson (1981) incorporated into her theory several elements conceptualized in earlier theories. These elements include self-concept, developmental stages, and match between individuals and occupation. Similar to Super (1951, 1953, 1963), Gottfredson (1981) suggested that individuals seek jobs that are compatible with their self-concept. She expanded on Super's idea by including variables such as gender, social class, and intelligence in her conceptualization of self-concept. These variables play significant roles in predicting occupational aspirations and career choices.

Gottfredson's (1981) theory addresses women's career development in two different ways. It discusses the process of how individuals reach a compromise when they face conflicting goals. The compromise process is particularly useful to understand how women juggle priorities such as societal expectations, family obligations, and career aspirations. Second, the theory maintains that individuals' perceptions of career and training opportunities play a significant role in determining their occupational aspirations and choices. This is particularly relevant to women because their career development is still limited by restricted occupational choices, unequal pay, and stereotypes (e.g., Betz & Fitzgerald, 1987; Brooks, 1990; U. S. Equal Opportunity Commission, 1991). Thus, Gottfredson's theory (1981) helps to understand why women make certain career choices and not others.

In Gottfredson's (1981) theory, there are four stages of development of self-concept and occupational preferences. Development is the result of interaction between individuals' cognitive development and social environment such as social class. As children progress through the developmental stages, their self-concept and preferences become increasingly more differentiated. As they approach adolescence, they are able to narrow their occupational choices based on knowledge of their own interest, capacities, and values. In addition to individuals' judgments of their abilities and motivations, definition of success in their community, expectations others have for them, and their awareness of accessibility of jobs also determine individual occupational aspirations and preferences.

According to Gottfredson (1981), as individuals begin to implement their career

choices, they may have to compromise their preferences because certain jobs and/or training opportunities are not available to them. The process of circumscription involves the inclusion and elimination of occupational alternatives. Gottfredson (1981) postulates that when career choice compromises are necessary, individuals will sacrifice their vocational interests first, then their desired prestige level, and their preferred sex type last. In other words, individuals are more ready to sacrifice their interests than to be in an occupation that is not "appropriate" for their gender. Gottfredson's theory helps to explain why women are concentrated in lower-pay and lower-status occupations despite their interests and aspirations. Early socialization experiences are again postulated as critical in the formation of occupational choices and aspirations. Research studies have supported Gottfredson's proposition about the pattern of compromise (Henderson, Hesketh, & Tuffin, 1988; Holt, 1989; Taylor & Pryor, 1985). Yet, these researchers also proposed that the process of compromise is more complex than is suggested in Gottfredson's theory.

Farmer's Multidimensional Model

Farmer (1985) presented a multidimensional model of career and achievement motivation for women and men. Farmer was influenced by Bandura's social learning theory, which maintained that "psychological functioning involves a continuous reciprocal interaction between behavioral, cognitive, and environmental influence" (Bandura, 1978, p. 344). In her model, Farmer (1985) proposed that three sets of variables interact to influence the aspiration, mastery, and career commitment of men and women. These three sets of variables are: (a) background variables such as age, gender, social

status, ethnicity, and ability; (b) personal variables such as academic self-esteem, achievement styles, causal attributions, intrinsic values, and homemaking commitment; and (c) environmental variables such as support from parents and teachers.

According to Farmer (1985), background variables influence a person's developing self-concept, aspiration, achievement motivation, and the way the environment is perceived. The developing self-concept is further influenced by interaction with the environment such as experiences at school and in the community. Personal variables in turn set limit to the influences of environment and have been found to influence career and achievement motivation. Thus, the relationship between personal and environmental variables as presented in Farmer's model is a reciprocal one.

Farmer (1985) used the findings of her study of 9th and 12th grade students to explain the roles and interrelationships of the three sets of variables in her model. In the study, personal variables were found to have the strongest influence on students' career motivation and tendency to choose difficult and challenging tasks rather than easy tasks. Nevertheless, the pattern of influence was quite different for men and women. Young women's career choice was more influenced by competing roles such as homemaking commitment than men's, suggesting that young women's career development may be more vulnerable to competing role priorities than men's. Moreover, environmental variables were found to play an important role in young people's achievement, aspiration, and career motivation. Interestingly, the mediating effect of environmental variables on the three variables was found to be stronger for young women than for young men. This finding suggested that young women's career and achievement motivation may be more

susceptible to their perception of opportunities in the environment and support from parents and teachers than men's.

Farmer suggested that changes in society's attitude towards women working may influence changes in men's and women's achievement in the future. Farmer's (1985) model has further supported the notion that earlier theories on career development are inadequate in explaining the complexity of career development process in a changing ecological, social, and economic context. Though Farmer's (1985) model was supported by the findings of her study, the age range of her sample may limit the generalization of her model to other groups such as university students.

Astin's Sociopsychological Model

Similar to Krumboltz's theory, Astin's (1984) sociopsychological model also emphasizes the significance of both psychological factors and cultural-environmental factors which interact to influence career choice and work behavior. The four factors in her model are:

1. Motivation refers to the driving force which directed an individual's behavior towards the satisfaction of three basic needs: survival, pleasure, and contribution. Survival needs refer to physiological survival. Pleasure needs refer to intrinsic satisfactions from work. Contribution needs refer to the need to be useful to society and be recognized for one's contributions.
2. Work expectations refer to individuals' perceptions of their capabilities and strengths, the options available, and the kind of work which can best fulfill their needs.

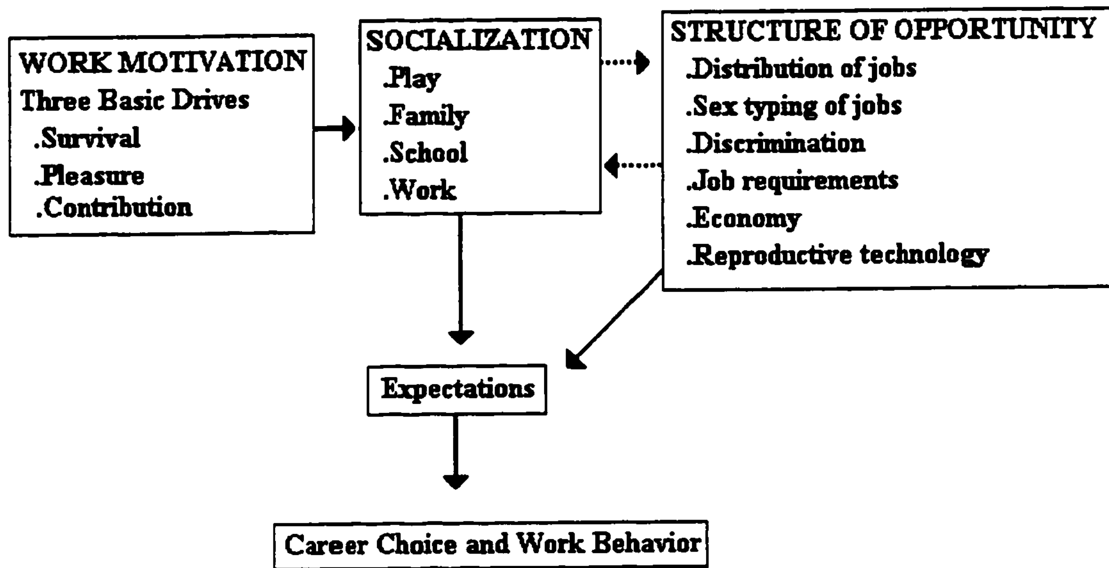


Figure1. Astin's sociopsychological model of career choice and work behavior

3. Socialization refers to the process through which social norms and values are internalized.
4. Structure of opportunity refers to the options that are available in the world of work.

As presented in Figure 1, the four factors in Astin's (1984) model are indeed interrelated. According to Astin, work is important because it is able to fulfill certain basic needs such as survival, pleasure, and contribution. Astin (1984) contended that men and women share a common set of work motivations. What differentiates their work expectations and career outcomes is the mediating effect of the other variables. As conceptualized in Astin's model, work expectations are different for men and women because of their differential socialization experiences as well as their perception of the structure of opportunity. According to Astin, children are rewarded and reinforced for

engaging in gender-appropriate behaviors. As children internalize social norms and values regarding appropriate sex-role behaviors and choices, they also become aware of the availability of opportunities. Implied in the theory is that socialization experiences can be either expanding (which promotes wide-spread options) or restricting (which promotes stereotyping).

The inclusion of the construct of structure of opportunity is a distinctive feature of Astin's model. From Astin's perspective, opportunity structure is not static, but changes over time. As society changes, men and women are faced with different environmental conditions, which in turn modify their career aspirations and work behaviors. To support this contention, Astin cited several examples of social change, such as advances in medical and reproductive technology and changes in economic trends and conditions. These larger social forces could help explain the increasing participation of women as well as minorities in the labor force. Implied in the conceptualization of the opportunity structure is the significance of individuals' perception and/or awareness of availability of options in the world of work. As such, opportunity structure could also help explain the differential career expectations and choices of men and women.

It is interesting to note that since the publication of Astin's model in 1984, little research has been conducted to test its validity. This may be due to the fact that her model lacks operational definitions of the proposed constructs and specific hypotheses (e.g., Betz & Fitzgerald, 1987; Brooks, 1990; Harmon, 1984), which makes empirical tests of the model difficult. However, two recent studies indirectly examined some of the ideas proposed in Astin's model. Scott and Hatalla's (1990) data supported Astin's notion of

the importance of structure of opportunity as a major determinant in women's career choice. Poole, Langan-Fox, Ciavarella, and Omodei's (1991) findings confirmed Astin's ideas of the differential effects of socialization and structure of opportunity on the career choices of men and women. For example, Poole and his colleagues (1991) found that the effect of participant-perceived parental support for career aspirations and attainment was much stronger for men than for women. Similarly, constraint variables such as parental status had a more inhibiting effect on women's professional attainment than on men's. Astin's inclusion of cultural-environmental factors in her model enhances its efficacy in understanding career choice and work behavior in today's world. Yet, more research is needed to verify the model.

Despite the fact that these two studies, and other studies on gender differences in career-related behavior, are able to identify variables which influence the differential career choice and development of men and women (e.g., Gati et al., 1995; Larson et al., 1994; Leso & Neimeyer, 1991; Leung & Plake, 1990), what seems to be missing is an understanding of how these variables operate to result in differential choices and decisions. Another missing piece in the literature on career development is the lack of theory-driven studies, as pointed out by various researchers (Fitzgerald & Rounds, 1989; Hackett et al., 1991; Phillips et al., 1988). The scant research on Astin's model is but one example.

Critique of Theories/Model Addressing the Career Development of Women

A review of four theories/models addressing the career development of women has been presented. These theories/models improved on previous theories by taking into

account the influence of variables such as socialization and availability of opportunity on women's career choices, aspirations and work behaviors. Astin's model (1984) and Farmer's (1985) model, in particular, addressed environmental variables such as support from parents and teachers, and the structure of opportunity as important predictors of career aspiration, expectations, and commitment of women. Hackett and Betz's (1981) theory and Gottfredson's (1981) theory emphasized the role socialization plays in the development of women's occupational self-concept, career aspirations, and career self-efficacy.

The inclusion of these variables enables better understanding of career development in a larger socioeconomic context. This is in line with the emergence of contextualism as one of the themes in counseling and development (Steenbarger, 1991). It has been increasingly recognized that life situations including career development cannot be studied in isolation, but within larger systemic, relational, and socioeconomic context (e.g., Barton, 1994; Blustein & Noumair, 1996; Cottone, 1991; Stickel, 1993; Steenbarger, 1991).

Nevertheless, these four theories/models addressing the career development of women also share some common weaknesses. One of the major weaknesses of these theories/models is the lack of operational definitions of the proposed constructs. An example is Gottfredson's (1981) conceptualization of self-concept, which is criticized as inadequate and lacking in explanatory power (Pryor, 1985). Astin's model is another example which suffers from inadequate operationalization of the proposed constructs and failure to formulate specific hypotheses (e.g., Betz & Fitzgerald, 1987; Brooks, 1990;

Harmon, 1984), which makes empirical tests of the model difficult. A related issue is the lack of empirical data to verify these theories/models. Failure to operationalize the proposed constructs makes it difficult for researchers to measure them and verify their validity. This may explain why few research studies have been conducted on these theories/models.

Moreover, authors of these theories/models of women's career development do not address the career development of multicultural groups, despite the potential to do so. For example, variables such as socialization and availability of opportunity could be used to explain why members of ethnic minority groups tend to be segregated in certain fields and limited in their career choices (e.g., Leong, 1993; Leung et al., 1994). These variables could also help readers understand the internal as well as external barriers faced by ethnic minorities in their career development process. Yet, authors of theories/models of women's career development are silent on the subject. More theory-driven studies with diverse groups could extend the application of these theories/models.

Despite the weaknesses inherent in Astin's model, it is still regarded by critics as having potential in research and practice (Brooks, 1990; Gilbert, 1984). The inclusion of the construct of opportunity structure in Astin's model is a determining factor in the decision to use it as a theoretical framework in this thesis. From Astin's perspective, opportunity structure is not static, but changes over time. As society changes, men and women are faced with different environmental conditions which in turn modify their career aspirations and work behaviors. With rapid development in the world's economic and sociopolitical climate, Astin's (1981) model could be used to understand such career-

related issues as life/career transition and career adjustment in people's lives.

Astin's (1981) model also has the potential to address the career development of ethnic minorities who are faced with internal and external barriers (e.g., Coleman & Barker, 1992). These individuals' career expectations and choices are likely to be affected by their socialization process as well as availability of opportunities in the world of work.

Factors Influencing the Career Development of Women

A review of the career development literature indicates that women's career development is influenced by various factors. In particular, four factors seem to be more influential than others. These four factors are: (a) motivational factors, (b) career expectations, (c) socialization experiences, and (d) perception of availability of opportunities. These factors are elaborated below.

Motivational Factors

Research studies have demonstrated that though men and women share similar work motivations, women tend to focus more on the intrinsic value of work. For example, in a study which compared the work values of students of the United States and Japan, it was found that girls in both samples valued helping others and self-development more than boys, and that boys valued money and creativity more (Vondracek, Shimizu, Schulenberg, Hostetler, & Sakayanagi, 1990). In other studies, women reported stronger needs for intrinsic work goals such as accomplishment and personal challenge. They also placed higher importance on helping others and family than men did (e.g., Beutell & Brenner, 1986; Bridges, 1989).

Moreover, women who are successful in their careers identified having a clear

career direction and motivation towards achieving goals as important determinants of success (Northcutt, 1991). In a review by Northcutt (1991), successful career women shared some common characteristics such as hard work, determination, perseverance, and commitment to their careers. In her study, Northcutt (1991) found that career women tend to define success similarly. The major components of success identified by these women were: (a) achieving one's personal goals, (b) receiving recognition from others, (c) enjoying one's work, and (d) contributing to others and to the community.

In sum, women tend to focus more on the intrinsic value of work in their career pursuits. Having a clear career direction and motivation towards achieving goals are important determinants of success for women.

Career Expectations

A related factor is women's work expectations, which can influence the nature and quality of their career development. Research studies have shown that though men and women share similar career expectations, women's career planning is more tentative and contingent on husbands and children (e.g., Komarovsky, 1985; Maines & Hardesty, 1987). It is interesting to note that, across age groups, most girls and women tend to include domestic and nurturing duties in their plans for the future. In a study of career expectations and aspirations of Canadian school children, almost without exception, girls expected to get married and have children. Though some of the girls expected to work outside the home in the future, it would only be after their children had grown up (Women's Bureau of Labour Canada, 1986).

In a study of career expectations and aspirations of adolescents, Farmer (1985)

reported that young women's career choice was more influenced by competing roles such as homemaking commitment than men's was. It suggested that young women's career development may be more vulnerable to competing role priorities than men's. Similar results are obtained in another study in which more females than males expected marriage and parenthood in their future narratives. These young women also expected a delay in career achievement to fulfill familial roles and obligations (Greene & Wheatley, 1992). In a study of university students, though the women interviewed wanted careers, they expected that their career paths would be interrupted by family and children (Machung, 1989).

In short, women's career development is influenced by their career expectations. Research studies have indicated that many girls and women tend to include domestic and nurturing duties in their plans for the future. This tendency may partly explain why women's career patterns are characterized by frequent career transition and interruption, delay in career achievement, and greater temporal constraint (e.g., Greene, 1990; Greene & Wheatley, 1992).

Socialization Experiences

Socialization experiences also play a significant role in the career development of women. Women have been socialized to be sensitive, nurturant, and dependent on others (McBride, 1990). They are less likely than men to be competitive, aggressive, and achievement-oriented, qualities usually associated with success in certain career domains. Frequently, women also lack sufficient support for persistence in math and science-related areas, and adequate mentors and role models (Good, Gilbert, & Scher, 1990). As a

consequence, women's career development suffers as they encounter internal barriers such as fear of success in competitive situations, lack of belief in their competence, and failure to develop their full potentials (e.g., Davenport & Yurich, 1991; McBride. 1990).

Moreover, female university students in a study were found to perceive themselves as less able than male students although they had higher GPAs than their male peers. These findings may in part be due to the differential socialization of men and women. The authors suggested that women have been socialized to devalue their achievements whereas men have been socialized to overestimate their abilities (Spade & Reese, 1991). Other studies have shown that women's career achievement, aspirations, and motivation are more likely than men's to be contingent on support from parents and teachers (e.g., Farmer, 1985; Fitzpatrick & Silverman, 1989; Lunneborg, 1982).

As discussed in the previous section on career expectations, women's socialization experiences could be used to explain why many women tend to delay or even sabotage career achievement despite their abilities and needs to pursue career interests. Internal barriers such as fear of success and lack of career efficacy are but one type of obstacle women have to encounter in their career development. Women also have to face external barriers which are present in the form of opportunity structure in the environment.

Perception of Availability of Opportunities

Awareness and perception of options available will no doubt influence women's career choice (Fitzpatrick & Silverman, 1989; Spade & Reese, 1991). According to Astin (1984), opportunity structure is not static, but changes over time. As society changes, men

and women are faced with different environmental conditions which in turn modify their career aspirations and work behaviors. Social changes such as advances in medical and reproductive technology and changes in economic trends and conditions could explain the increasing participation of women in the labor force. In fact, it is projected that 62% of all women will be working in the year 2000 (London & Greller, 1991). Though women are playing an increasingly important role in the labor force, many of them continue to dominate traditionally female fields such as education, library science, and social sciences (e.g., Barrett, 1987; Betz & Fitzgerald, 1987; National Science Foundation, 1994). Research studies have also documented the difficulty women have in moving beyond middle management despite their abilities and performance (e.g., McAdoo, 1989; Morrison, White, Velsor, & the Center for Creative Leadership, 1987). Their opportunity is still limited by restricted occupational choices, unequal pay, and discrimination (e.g., Brooks, 1990; Ihle et al., 1996; Murrell, Frieze, & Frost, 1991; U. S. Equal Opportunity Commission, 1991).

In a study of Canadian high school students, 91% of the adolescent women said that they strongly agreed or agreed that women today have as good a chance as men of succeeding in the world. Yet, they were also aware of favoritism at school and at home, gender discrimination, prejudices, and stereotyped roles. Caught between such double standards and injustice, these adolescent women expressed their sense of frustration, ambivalence, powerlessness, and loss of self-confidence regarding the future (Soucie, 1990).

If the findings of these studies are indeed reflective of reality, schools and

counselors will need to help young women overcome both internal and external barriers when choosing a career. Women's career motivation and outcome expectations are likely to be affected if they believe that certain fields and positions are closed to them not because of their abilities but because of their gender. It is obvious that the four factors presented in this section are indeed related. They play different roles in the complex processes involved in women's career development.

Summary

In summary, an overview of some of the major theories of career development has been presented. These approaches are chosen because of their research potentials and promises to theory building in the future. Theories formulated before the 1980's were based on the experiences of white, middle-class males. Subsequent empirical data generated from these theories also focused primarily on men's experiences. Theories related to women's career development began to emerge in the 1980's. These later theories improved on previous theories by taking into account the influences of variables such as socialization and availability of opportunity on individuals' career choice and decision making. Though these theories do shed light on the complex processes involved in women's and ethnic minorities' career-related experiences, they remain relatively unscrutinized by empirical studies, partly due to inadequate operationalization of the proposed constructs. It is important to examine the validity of these theories in order to advance the understanding of women's and ethnic minorities' career aspirations, choice, and work behaviors. The increased diversity of the workplace (Hansen, 1993; Herr, 1992; London & Greller, 1991; McDaniels & Gysbers, 1992) makes the study of these theories

more necessary.

A review of the career development literature indicates that four factors seem to be more prominent in influencing the career development of women. These factors are namely, motivational factors, career expectations, socialization experiences, and perception of availability of opportunities. An examination of these four factors not only sheds light on the complex processes involved in the career development of women, but also lends support to some of the ideas presented in the theories/models of women's career development such as Astin's (1984).

Using Astin's (1984) model as a theoretical framework, the present study addresses some missing pieces in the career development literature. One purpose of the study is to examine how the four constructs in Astin's model operate in the choice of career/college major of a selected sample of first-year university students. Since the focus of the present study is on first-year university students, discussion in the next section will focus on youth development. More specifically, discussion will be mainly on (a) adolescent developmental tasks, (b) significance of the university years, and (c) career-related issues facing university students today.

A Review of Selected Tasks and Issues Related to Adolescent Development

Adolescent Developmental Tasks

Adolescents are faced with different developmental tasks such as developing conceptual and problem-solving skills and more mature interpersonal relationships (Havighurst, 1972). Among these and other tasks, three specific ones are believed to be the most significant. They are (a) intellectual development, (b) identity achievement, and

(c) the development of a sense of competence. These three tasks are of particular significance as young people make transition to university and the world of work.

Intellectual development. Intellectual development during adolescence is of foremost importance because it precedes achievement of other developmental tasks. There are several changes in young people's intellectual ability during adolescence. For example, according to Inhelder and Piaget (1958), adolescence is a period during which young people develop formal operational thought. Formal operations are characterized by the ability to think in abstract and logical ways. With the development of formal operational thought, adolescents are also able to deal with hypothetical situations and use a deductive approach to solve problems. These abilities enable adolescents to manipulate the environment and make future plans.

Another theorist (Perry, 1970, 1981) proposes that intellectual development occurs in a logical order through differentiations and reorganizations. It also requires the meaningful interpretation of increasingly complex experience. According to Perry, individuals develop in a series of identifiable stages. More specifically, they develop from perceiving the world in dualistic way (things are either black or white, right or wrong, good or bad, and knowledge is derived from authority) to perceiving the world in relativistic manner (individuals begin to perceive both the presence of multiple points of view and the indeterminacies of "Truth"). In his study using college students, Perry (1970) found that approximately 75% of the senior students in his studies had developed relativistic perception. Perry further maintained that perception is dynamic and changeable, and modifiable in the face of new understanding of self and new evidence

about the world.

Adolescence is also seen as a period of acquisition, during which young people accumulate information and learn problem-solving skills (Schaie, 1982). They also develop a more complex and sophisticated way of thinking during adolescence. The newly acquired abilities/skills enable them to integrate past and present experiences, develop an identity, make future plans, and develop different means to solve problems. In sum, intellectual development during adolescence equips young people to deal with other developmental tasks such as identity achievement, and the development of a sense of competence.

Identity achievement. Erikson (1950, 1968) contended that the most important development task facing adolescents is the achievement of a positive and coherent identity. He postulated that identity formation requires experiencing an inner sameness which continues over time. It involves a process of synthesis and resynthesis, as well as differentiation and integration. Among the various identity domains he identified, Erikson claimed that selection of an occupational identity is central in the identity process. It is his belief that "it is primarily the inability to settle on an occupational identity which disturbs young people" (Erikson, 1959, p. 92). This belief is validated by observations that career-related issues are a primary concern among Canadian youth (Conger et al., 1994; Posterski & Bibby, 1988).

Moreover, Erikson labeled the developmental task of adolescence as identity vs. role diffusion. A clear sense of personal identity is hypothesized to be associated with self-esteem, a sense of mastery, goal-directed behavior, and intimate personal

relationships (Adams, 1992; Markstrom-Adams, 1992; Waterman, 1992). On the other hand, identity diffusion is likely to be related to failure to plan for the future, inability to utilize inner resources, and fear of commitment in close interpersonal relationships (Erikson, 1968).

A distinguishing feature of Erikson's theory is his idea that a sense of identity is developed within a social context (Erikson, 1968, 1980). In other words, identity develops as a consequence of the interaction between psychological, social, and cultural factors. Erikson's idea of "self in context" is shared by other authors (e.g., Bordin, 1984; Chickering & Reisser, 1993; Grotevant, 1987; Hiebert & Thomlison, 1996; Knefelkamp, Widick, & Parker, 1978; Phinney & Rosenthal, 1992). Generally speaking, adolescents find within their social context the following elements: (a) feedback and validation, (b) acceptance, (c) emotional support, and (d) opportunity for experimentation (Blos, 1962, 1979; Chickering & Reisser, 1993; Erikson, 1968; Knefelkamp et al., 1978). In short, a supportive environment is conducive to the development of a healthy identity.

Research findings have repeatedly showed that support from family and peers facilitates an adolescent's identity achievement process. For example, it has been demonstrated that positive identity development is more likely to occur in a family environment which provides emotional support and fosters autonomy (e.g., Grotevant & Cooper, 1985; Kenny & Donaldson, 1991, 1992; Schultheiss & Blustein, 1994). LaVoie (1990) further suggested that increases in adolescent individuation did not sever attachment bonds. Instead, the quality of relatedness changed, which permitted differentiation. Furthermore, adolescents whose parents were sensitive to cultural

diversity were found to develop positive ethnic minority identity (Phinney & Nakayama, 1991). Studies have also documented the importance of peer support in college students' identity formation (e.g., Baxter-Magolda, 1992; Mellor, 1989).

Marcia (1966, 1980) expanded Erikson's ideas by identifying four identity statuses according to two dimensions, exploration and commitment. Exploration refers to a period of active questioning whereas commitment refers to whether a firm decision has been made. The two dimensions combined to define the following four identity statuses:

1. Identity diffusion - Adolescents in this status have neither started the exploration process nor made any commitments. Their political, social, and religious beliefs are likely to be ambiguous and they lack educational and vocational aspirations.
2. Foreclosure - Adolescents in this status have made a strong commitment to an identity without exploring other alternatives. In most cases, decisions have been made for them by authority figures (usually parents) and are accepted without question.
3. Moratorium - Adolescents in this status actively experiment with different roles and alternatives, but delay making any commitments. This period is seen as useful and healthful since it allows individuals more time to explore in their quest for identity.
4. Identity achieved - Adolescents in this status have finished exploring different alternatives and have committed to a choice. Compared to adolescents in the other three statuses, these adolescents are found to be more independent, have more realistic goals, and have high self-esteem (Marcia, 1980).

It is important to note that identities are not static and absolutely permanent. Changes in the environment or internal state may influence the level of commitment and

trigger the exploratory process. Research studies have generally supported Marcia's identity statuses. For example, in a study conducted by Clancy and Dollinger (1993), it is found that college students who have committed to an identity have a lower level of anxiety and demonstrate more internal locus of control. Students in the moratorium and diffusion statuses exhibited a higher level of anxiety. There was also a negative relationship between students in the foreclosure status and their openness to experience. In another study, Blustein and Phillips (1990) found that college students in different identity statuses demonstrated different career decision-making styles. For example, compared to foreclosed and diffused students, identity achieved students were more planful and logical.

To summarize, a central developmental task during adolescence is to achieve a coherent sense of identity. It requires the adolescent to integrate past, present, and future experiences. What is noteworthy is the notion that identity develops within a social context. Family and peers in particular, play a crucial role in facilitating identity formation by providing a supportive environment. Research evidence is presented to support this claim.

Development of a sense of competence. A third developmental task during adolescence is the development of a sense of competence. A sense of competence is closely related to adjustment and the ability to handle tasks and achieve goals successfully.

Competence has been defined in various ways. White (1959) defined competence as effective interaction with the environment and linked it to what he called "competence

motivation" - an urge to find out about the environment and to gain control over it. Grasha and Kirschenbaum (1980) define competence as "the thing we do to enhance the quality of our lives and otherwise go beyond just meeting the demands of our environment" (p. 61). These researchers also include in their definition characteristics such as becoming less dependent upon external sources of rewards and feedback on performance; focusing on gaining measurable accomplishments of skills; maintaining flexibility in responding to tasks; and trying to achieve self-actualization.

Waters and Sroufe (1983) incorporated a developmental perspective to their definition and suggested that a competent person is "able to make use of environmental and personal resources to achieve a good developmental outcome" (p. 81). In this definition, the emphasis is on enlisting and coordinating personal resources with the goal of adapting to the environment, thus gaining from such experience. According to Waters and Sroufe, personal resources range from specific skills and abilities to general constructs such as self-esteem and self-worth.

These authors seem to share the view that a sense of competence enables individuals to adapt to the environment by making use of personal resources. Related to this view is Bandura's (1989) concept of self-efficacy. He defined self-efficacy as "people's judgments of their capabilities to organize and execute courses of action acquired to attain designated types of performances" (Bandura, 1986, p. 391). In other words, perceived efficacy plays a critical role in determining whether certain tasks will be accomplished and whether skills and resources will be utilized. It is suggested that most efficacious people can effectively handle a variety of tasks. Evidence shows that self-

efficacy predicts a number of outcomes such as academic achievements, social competence, and career choice (e.g., Bandura, 1986; Schunk, 1991).

Bandura (1986, 1989) identified three different ways in which self-efficacy affects psychological functioning:

1. Choice - People choose to engage in activities that they believe they can master.
2. Motivation - A high sense of efficacy leads people to mobilize a high level of effort to achieve goals in the face of obstacles and difficulties.
3. Thinking processes - People's thinking processes can be self-aiding or self-hindering depending on their level of self-efficacy.

In short, a strong sense of self-efficacy enables people to exercise control over events and to translate self-belief into "accomplishments, motivation, and personal well-being" (Bandura, 1989, p. 53).

Adopting a similar perspective, Harter (1988) suggested that a sense of competence contributes to individuals' sense of self-worth. For example, in her research, she found that children's and adolescents' sense of self-worth is highly associated with social competence, academic competence, athletic competence, and parent relationships (Harter, 1982; 1986). In addition, she found that the most important sources of support in determining a child's self-worth are parents and classmates. As such, her findings reiterate the importance of social context within which individuals develop.

In her developmental model, Harter (1988) acknowledges the major impact of significant others on one's evolving self. In developing a sense of self, children evaluate their performance, based on the standard significant others have set for them. They

internalize these expectations which provide the basis for future evaluation. Similar to Erikson (1950, 1968), Harter's (1988) model postulates that an individual's sense of self emerges as an integration of past and present experiences.

An underlying theme common to these various views is that a sense of competence is essential for individuals in transition. It is closely related to whether resources will be properly utilized in the transition process, and whether certain tasks will be attempted and/or accomplished. A sense of control and mastery is particularly important for adolescents to deal with multiple challenges and demands in an ever-changing context.

In sum, the three developmental tasks pose tremendous challenges to adolescents. Two specific themes emerge over the discussion of these tasks. First of all, they require adolescents to be active participants in their developmental process. In terms of achieving an identity, adolescents are expected to explore different alternatives and to integrate past experiences into their current self. In developing a sense of competence, they utilize both internal and external resources to achieve goals. Since different adolescents have different resources and coping skills, their developmental processes and outcomes are likely to be different.

The second theme is that adolescents do not develop in a vacuum but within a social context. Among the various socialization agents, parents and peers play a significant role in adolescent development. Their support is indeed crucial in facilitating an adolescent's smooth transition to adulthood. Parents in particular, should act as work role models who induce work ethics, attitudes, and knowledge in adolescents (Coleman,

1980). In a time of rapid change, adolescents are likely to be faced with more difficult and challenging tasks. The development and utilization of coping skills and a supportive environment become all the more essential.

Development of Adolescent Women

It is important to note that feminist theorists and authors have questioned the relevance of existing developmental theories to women's experiences and their sense of self (e.g., Belenky, Clinchy, Goldberger, & Tarule, 1986; Gilligan, 1977, 1982; Miller, 1976). Specifically, these authors observed persistent discrepancies between women's development and that depicted by Erikson (1950, 1968), Perry (1970, 1981), and other developmental theorists. For example, Gilligan maintains that women's perception of the self is "tenaciously embedded in relationships with others" and their moral judgments are "insistently contextual" (p. 482). The values of care and connection that emerge saliently in women's thinking imply a view of self and others as interdependent and of relationships of networks. Their concern for the well-being of others constitutes a "different voice" from that used by males. The work of Gilligan (1977, 1982) and other feminist writers have helped to move current thinking from a deficiency model of women to one that emphasized women's strengths and the importance of relational development (Jordan, Kaplan, Miller, Stiver, & Surrey, 1991). It is therefore conceivable that the career development of male university students and female university students are likely to be different. Using Astin's model as a theoretical framework, the present study will help to shed light on the unique experiences of a selected group of male and female university students.

Significance of the University Years

One of the major milestones during late adolescence is making transition to university. Authors and researchers have reiterated the significance of studying college students' development and their university experience. The undergraduate years have been described as a period during which students make plans for their future life roles. They need to decide what careers they want to pursue and to make decisions about relationships and commitment (Drew, 1978). White (1980) characterized higher education as "an institutionalized form of psychosocial moratorium" (p. 20). During the university years, students are given opportunities to explore their own interests and career options, to clarify goals and to make plans, and to develop a sense of who they are and what they want to be. Similarly, Drum (1980) termed the university years a period of "developmental expansiveness" (p. 14) during which students develop along different dimensions, such as intellectual, academic, personal, social, and cultural. Other researchers suggested that for many adolescents, the beginning of university studies could be their first major life transition (Brooks & DuBois, 1995).

In addition to the potentials for growth, there is also the possibility that students may experience considerable difficulty and stress as a result of making transition to university. For example, it is not uncommon for students to report feeling lonely and isolated; having difficulty with separation and individuation; and experiencing psychological stress, increased interpersonal conflicts and financial pressures (e.g., Felsten & Wilcox, 1992; Kenny & Donaldson, 1991; Lapsley, Rice, & FitzGerald, 1990; McIntire & Smith, 1993; Rice, 1992). Students who are undecided about their career are

also prone to anxiety, self-esteem problems, interpersonal difficulties, and dependency (e.g., Long, Sowa, & Niles, 1995). It is obvious that experiences during the university years are critical to students' development. Whether they are able to define interests and goals, and to make career decisions depends to a large extent on the guidance and services they receive in university. Theory-driven research is thus needed to guide the development and provision of student services which could assist students to succeed in the university environment and to make wise career decisions.

In short, university provides a "testing ground" for students to explore and experiment with different alternatives and roles. The significance of the university years can be summarized in the following statement:

> [University] may be the one time in life when people can sample new fields of knowledge, pursue familiar topics in more depth, test hunches about career possibilities, discover new capabilities through experiential learning, and leave comfort zone to do a novel class assignment or partake of cocurricular options.
>
> (Chickering & Reisser, 1993, p. 217)

As previously mentioned, a major challenge that students face during the university years is to decide what careers they want to pursue (Drew, 1978). Career development has been conceived as a major component of identity formation (e.g., Erikson, 1959; Rosenbaum, Carty, & Burns, 1994) as well as an expression and implementation of one's self-concept (e.g., Gottfredson, 1981; Super, 1951, 1953, 1963). In light of the pervasiveness of the impact of choosing a career on one's life (Hiebert, 1993), discussion in the following section will focus on some of the career-related issues

facing university students today.

Career-Related Issues Facing University Students Today

Current trends in today's world of work. In the 1990's, the development of adolescents in industrial societies is likely to be affected by the rapid changes in political, economic, and sociocultural climate. It is conceivable that the formative experiences of the present generation of young people are likely to be very different from that of previous generations. For example, an increasing number of young people are remaining in university longer, staying single or postponing marriage and childbearing, and remaining at home after graduation from university. All these trends are attributed to the declining economy, falling expectations, and fluctuating unemployment rates (Hoffman, 1990). An examination of some of the current trends in today's world of work will help to understand the career development of university students within larger economic and sociopolitical context.

One of the trends in today's world of work is rapid life/career transition. Technological change, globalization, retrenchment during recessions, and workplace diversity have been identified as some of the global trends which have major implications for career development in post-industrial society (Egan, 1994; Giddens, 1991; Hansen, 1993; Herr, 1992; London & Greller, 1991; McDaniels & Gysbers, 1992). These trends lead to rapid changes in the structure and availability of work. The ability to cope with transitions will become increasingly important. One way to succeed in an ever-changing world is to be flexible and adaptable (Benjamin & Walz, 1995; Conger et al., 1994).

At the individual level, unemployment rates continue to be high as organizations

continue to displace employees. Job movement is horizontal rather than vertical. People change careers more often and are increasingly faced with mid-career change (Benjamin & Walz, 1995; London & Greller, 1991; Venne, 1996). It becomes important for individuals to continuously appraise their situation, learn how to mobilize their coping skills, and engage in lifelong training and education (Brammer, 1992; Hansen, 1993; London & Greller, 1991; Schlossberg, 1984). It is therefore conceivable that career counseling will play an increasingly significant role in assisting people to make transitions throughout their lives (Conger et al., 1994). Greater flexibility and adaptability are essential qualities for successful career planning and transitions.

Among the trends mentioned earlier, corporate downsizing and technological revolution in particular have given rise to a new work ethic. That is, there is little job security; job movement is horizontal rather than vertical; and the work force is composed increasingly of part-time, temporary, and contract employees (Borgen, 1991; Hansen, 1993; Venne, 1996). In response to the new work ethic, individuals need to be flexible and open to change. In order to adapt to changes in post-industrial society, individuals have to acquire new skills such as problem-solving skills, communication skills, and creative and innovative thinking (Peavy, 1993). Moreover, more individuals are now becoming "portfolio persons" who "sell skills, services, and knowledge to a number of different employers on a part-time or contractual basis, instead of working full-time for a single employer" (Figler, 1992, p. 5). They have to actively participate in the process of creating and developing their own career. A related issue is how best to prepare university students today to meet these challenges.

Integration of education and career training. Transition from school to work has been stated as a major problem in many parts of the world (Herr, 1992). One of the most common concerns expressed by university students is the need for assistance with career planning and career choice (Conger et al., 1994; Erwin, 1996; Herr, 1992; Lucas, 1993). The lack of knowledge about different educational programs and career possibilities may be a more prominent issue for female students who continue to lag behind male students in graduate degrees earned, job outcomes, and incomes. They continue to be under represented in stereotypically male occupations such as science and mathematics, and are over represented in professions that have been traditionally dominated by women such as social sciences (e.g., Alexitch & Page, 1996; Erwin, 1996). The situation is similar for ethnic minority students who are overly segregated in certain fields such as engineering and computer science for Asian American students (Leong, 1993; Leung et al., 1994). To maximize the potentials of these students, counselors have to increase students' awareness of career choices, help them identify potential barriers (both internal and external), and to help them develop strategies to meet these challenges (Bowman, 1993; Hotchkiss & Borow, 1990; McDaniels & Gysbers, 1992).

In order to better prepare students to meet the dynamic and complex challenges posed by today's world of work, it becomes more important to establish linkages between education and career training. More specifically, there has been an increasing demand for systematic career education. The main purpose of career education is to help students develop the necessary knowledge, skills, and attitudes in order to make wise educational and career choices (Balcombe, 1995). In addition to understanding one's abilities, skills,

and interests, students are also required to understand the demands and opportunities of the world of work. In order to achieve this aim, career education has to start early and be made part of an inherent part in individuals' life planning and development. Researchers have proposed to integrate career training into academic training, both at the secondary level and tertiary level (Herr, 1992; Hiebert, 1993; Jarvis, 1995; Perry, 1994; Sharpe, 1996; Watts, 1995). Such conscious career planning and awareness could be of particular relevance to the career development of female and ethnic minority students who are faced with additional challenges such as discrimination and occupational stereotypes.

In sum, three specific developmental tasks that are of particular significance to adolescents are (a) intellectual development, (b) identity achievement, and (c) the development of a sense of competence. As adolescents enter university, they are faced with a number of developmental challenges. Among them is the development of a career path and an occupational identity. In order to better prepare students to meet the challenges posed by rapid changes and development in today's world of work, researchers have called for systematic career education. It is important for young people to learn how to seek career information, how to make career decisions, and become aware of the necessary steps involved once a career decision is reached. They also need to be aware of their own interests and abilities, and clarify their goals. In other words, they should be encouraged to actively participate in their career decision process.

In light of the significance of career development in students' life development, it is important to understand how and why they make certain career decisions. It is assumed that before students enroll in university, they already have some ideas as to which career

path they want to pursue, even if that plan is to leave options open and do more exploring. These ideas are presumed to be the results of several factors such as evaluation of their own interests and aptitudes, socialization, and work and/or volunteering experiences. Using Astin's model as a theoretical framework, an intended purpose of the current study is to examine how the four constructs in Astin's model operate in the choice of career/college major of a selected sample of first-year university students. Since the socialization process, work experiences, and availability of opportunities are likely to be different for different students, it is conceivable that the four constructs in Astin's model will operate differently in different subgroups of students.

Research Questions

In light of the above discussion, the following specific research questions were generated.

1. What differences exist between male and female students on Astin's four factors?
2. Since the socialization and experiences are likely to be different for students whose language of origin is English and students whose language of origin is not English, what differences exist between them on Astin's four factors?
3. What are the relationships among Astin's four factors?

Chapter 3: Methodology

Sample Selection

At the beginning of April 1996, the researcher initiated a meeting with the coordinator of the First Year Experience program at the University of Calgary. During the meeting, she explained the purpose of the proposed study and the possible implications of the study in providing insights as to the needs and concerns of first-year university students. The coordinator of the First Year Experience program showed keen interest in the study and agreed to assist the researcher in accessing students who were enrolled in the orientation program. The orientation program was divided into different modules. Three hundred and seventy six first-year students entering the University of Calgary in Fall 1996 were invited to participate in this study. They were given a package prepared by the researcher at a break in the orientation program. At the end of data collection, responses were collected from 264 students which gave a return rate of approximately 70%. Among the 264 returned questionnaires, 11 were discarded (10 questionnaires were incomplete and one student gave the same response to all 40 items on the questionnaire). Thus, the responses of 253 students were used in the data analysis. Students' language of origin (English, non-English) was used to group students in the data analysis. Table 1 describes the sample in a more detailed manner. Response frequencies of the demographic questions are presented in Appendix A.

Sample Description

Among the 253 students in the present sample, the majority (approximately 88.45%) were in the age range of 17 to 20 years old. There were 168 female students

(66.93%) and 83 male students (33.07%). Two students did not indicate their gender. As Table 1 shows, across categories, female students constituted approximately two-thirds of the sample, while male students constituted approximately one-third of the sample. The majority of the students were English-speaking. Across categories, students whose language of origin was English constituted approximately 83% of the sample, while students whose language of origin was not English constituted the remaining 16% to 17% of the sample. The majority of the students (approximately 81%) had resided in Canada since birth. Among this group of first-year university students, approximately 84% of the students had previous job experience. Approximately 67% of the students had selected a major and about 62% of them had selected an occupation.

Steps were taken to assess the representativeness of the sample in the present study. A report on student demographics published by the Office of Institutional Analysis at the University of Calgary was obtained (Dingle, Hillmo, Kelly, & Roche, 1997). Data from the report suggested that female students constituted a majority (54.35%) of the first-year student population whereas male students constituted approximately 45.65% of the first-year student population. Thus the sample in this study had a higher proportion of females and lower proportion of males than the first year university population.

Though no information regarding first-year students' age distribution was available, the age distribution of all undergraduate students who enrolled at the university in Fall 1996 was available. The data suggested that students at the age range of 17 to 20 constituted almost half (42.82%) of the undergraduate population. Since first-year students only constituted only approximately 25% of the undergraduate population, it is

projected that the percentages for younger students would be higher for first-year students. Thus the sample in this study was slightly younger than the university population. This information suggested that the gender and age distribution of students in the present study was rather consistent with the undergraduate student population. The sample of the present study could be considered quite representative of the first-year students who enrolled at the University of Calgary in Fall 1996.

Table 1

Sample Description

	Language of origin				
	English		Non-English		Total
Demographics	M	F	M	F	
Length of residency					
Since birth	56(22.67)	134(54.26)	5(2.02)	6(2.43)	201(81.38)
Less than 15 years	5(2.02)	11(4.45)	14(5.67)	16(6.48)	46(18.62)
Total	206(83.40)		41(16.60)		247(100)
	61(24.69)	145(58.71)	19(7.69)	22(8.91)	
Job experience					
Yes	50(20.08)	129(51.81)	12(4.82)	18(7.23)	209(83.94)
No	12(4.82)	16(6.43)	8(3.21)	4(1.61)	40(16.06)
Total	207(83.13)		42(16.87)		249(100)
	62(24.90)	145(58.24)	20(8.03)	22(8.84)	
Major selection					
Yes	42(16.94)	93(37.50)	13(5.24)	17(6.86)	165(66.53)
No	20(8.06)	51(20.56)	7(2.82)	5(2.02)	83(33.47)
Total	206(83.06)		42(16.94)		248(100)
	62(25.00)	144(58.06)	20(8.06)	22(8.88)	

Table 1 (continued)

	Language of origin				
	English		Non-English		Total
Demographics	M	F	M	F	
Occupation selection					
Decided	37(14.98)	89(36.03)	11(4.45)	16(6.48)	153(61.94)
Undecided	24(9.72)	56(22.67)	8(3.24)	6(2.43)	94(38.06)
Total	206(83.40)		41(16.60)		247(100)
	61(24.70)	145(58.70)	19(7.69)	22(8.91)	
Total*	62(24.90)	145(58.23)	20(8.03)	22(8.84)	249(100)

Note. Some subgroups do not add up to the total because some participants did not provide complete information. The numbers in parentheses are percentages.

Data Source

The survey instrument used in the study consisted of two parts (see Appendix B). Part 1 was used to collect demographic data from participants. Information collected in this part included participants' gender, age, residency status, length of stay in Canada, language of origin, English proficiency, and proposed major and occupation.

Part 2 of the survey consisted of 40 items, 10 items for each of the four constructs in Astin's model. To reduce overlaps and to make the constructs more distinct from each other, the definitions of work expectations and structure of opportunity are slightly different from the ones presented in Chapter 2.

- Motivation, is defined as the driving force which directs an individual's behavior towards the satisfaction of three basic needs: Survival, pleasure, and making contributions to society. A high score on this sub-scale suggests that an individual has a strong driving force towards meeting his/her own needs and goals. A low

score suggests that an individual has low driving force towards meeting his/her own needs and goals.

- Work expectation, is defined as an individual's perceptions of his/her capabilities and strength, and the kind of work that can best satisfy his/her needs. A high score on this sub-scale suggests that an individual has a high level of awareness of his/her own capabilities and strengths, and of the kind of work that can best satisfy his/her needs. A low score suggests that an individual has a low level of awareness of his/her own capabilities and strengths, and of the kind of work that can best satisfy his/her needs.
- Socialization, is defined as a process through which social norms, values, and sex-role behaviors are internalized through play, family, school, and early work and volunteering experiences. A high score on this sub-scale suggests that an individual's socialization experience is expanding and not gender stereotypic. A low score suggests that an individual's socialization experience is restricted and gender stereotypic.
- Structure of opportunity, is defined as the options that are available in the world of work. In the survey instrument, individuals' perception and/or awareness of economic conditions, realities in the job market, and opportunities available to women was assessed. A high score on this sub-scale suggests that an individual has a high level of awareness of the economic conditions, realities in the job market, and opportunities available to women. A low score suggests that an individual has a low level of awareness of the economic conditions, realities in the

job market, and opportunities available to women.

Since the end of 1995, the researcher had been trying to contact H. Astin to obtain any instruments she may have developed for testing her model. After numerous attempts through correspondence and e-mail had failed to solicit any response from her, the researcher began to formulate a survey instrument based on her understanding of the constructs defined in Astin's model.

As suggested by Shaughnessy and Zechmeister (1994), the following steps were taken to develop the survey instrument:

1. Raw items were generated based on the researcher's understanding of the constructs as defined by Astin. Ten items were generated for each sub-scale. Care was taken so that the items did not describe more than one construct.
2. The draft of the survey instrument was examined and revised. The researcher then asked five experts who were familiar with Astin's work to rate the items independently, indicating which of the four constructs they represented. Three of the experts were university professors who had expertise in career development and taught courses in the area. Another expert had expertise in women's issues, especially those pertaining to women's career development. The fifth expert was a counselor at a university counseling center who also had a strong background in career development.

   There were two rounds of rating. Based on the first-round rating results, 25 items were confirmed (15 of the items received 80% agreement among raters, 10 of the items received 100% agreement among raters). Six items received a majority vote (60%), and nine items were to be clarified in terms of their construct assignment.

Minor wording changes were made in 10 items (1, 2, 8, 10, 11, 20, 21, 26, 35, 38) to reflect more accurately their respective construct. Major wording changes were made in items 9, 28, and 40. Item no. 14 was reassigned to a different construct.

In the second-round rating, 20 items received consensus votes among all five raters. No changes were made to these items. For the seven items that received four out of five votes, minor wording changes were made in order to reflect more accurately their respective construct assignment. For the 12 items that received three out of five votes, minor wording changes were made.

In consultation with her advisor, the researcher decided on the final construct assignment of items 11, 14, 21, 28, 38 although their assignment was inconsistent with that of raters. This decision was made mainly because there was not enough time for a third round of rating and revision before the student orientation program began and data collection was necessary. These items were revised to make them more in line with Astin's definition. (see Appendix C for detailed records of rating).

Kappa statistic was calculated to assess inter-rater agreement. It was used in preference to percentage agreement because it accounts for chance agreement amongst raters. Significant Kappas indicate significant agreement amongst raters beyond chance. For the first round of rating, Kappa statistic $K = 17.53$ which indicated that there was significant agreement among the five raters. For the second round of rating, Kappa statistic $K = 22.50$ which also indicated that there was significant agreement among the five raters. (1-tailed .01 = 2.33, 2-tailed .01 = 2.58).

3. To examine readability of the instrument and administrative procedure, a pilot test of

the survey instrument was carried out. Four female students participated in the pilot study. They were all in their undergraduate studies. Two of the students were "traditional" students (they were both between 17 and 24 years of age), and the other two students were "non-traditional" students (they were both over 25 years of age). The four students were recruited from the International Student Office and the University Counselling Services at the University of Calgary.

Since only one student was able to participate in the scheduled focus-group discussion, all four students were interviewed by the researcher after they had completed the questionnaire. The interviews lasted from five to thirty minutes. In addition to recording students' responses, the researcher also referred to students' comments written on the questionnaires. The following are some of students' comments:

Comment 1: The survey instrument is easy to understand.

Comment 2: Might want to make more use of "white space" so questions do not appear as daunting.

Comment 3: The questions about messages I heard growing up are very much affected by my age (growing up in 1960s - 70s). This may be a consideration for "non-traditional" students.

Comment 4: The gender issue leapt out to me.

Comment 5: I like the rating scale because it is very clear-cut and I think in black and white.

It took the students an average of 10 minutes to complete the questionnaire.

Overall, the students found the questionnaire items straightforward, clear, and easy to understand. Except for Q9 of Part I, students did not think that any of the other items need clarification. The two "non-traditional" students thought that the item was not designed for them. One other student who has had more than five "job-related experiences" was not sure what would be considered more relevant.

4. The survey instrument was edited and finalized based on the information obtained from expert raters and students.

Procedures

The researcher distributed a package to students at a break in the orientation program. The items in the package included: (1) a copy of the questionnaire (see Appendix B); (2) a copy of a cover letter which described the purpose of the study, the detailed nature of participants' involvement, and the possible risks to which they may be exposed (see Appendix D); and (3) two copies of the consent for research participation form (one copy was signed and returned to the researcher and the other copy was retained by students for future references) (see Appendix E).

The researcher was given 15 minutes to approach students who congregated at a ballroom prior to the beginning of a session entitled "Survival 201". The researcher introduced herself, gave a brief description of the study, explained the nature of participants' involvement, and distributed the questionnaires to students. The students who agreed to participate in the study read the cover letter and signed one copy of the consent for research participation form before they proceeded to fill out the questionnaire. It took them about 10-15 minutes to do so. Students who were able to complete the

questionnaire while waiting for the session to begin returned the questionnaire to a collection box prepared by the researcher. Those who were not able to finish were reminded to either return the questionnaire to their student leaders at the end of the day, or to return it to a collection box located at the entrance of the Student Resource Center, where they registered for the orientation program.

Chapter 4: Results

The following chapter is organized according to the three research questions. The data were analyzed in several steps. Two-way MANOVAs were used to assess the first two research questions which addressed the effects of gender and language differences among students. Pearson product-moment correlation was conducted to assess the third research question, which addressed the relationships among Astin's four factors. To investigate other differences in the demographic variables, supplementary analyses were conducted using one-way MANOVAs and t-tests.

Research Question No. 1

According to Astin (1984), men and women share a common set of work motivations. What differentiates their work expectations and career outcomes is the mediating effect of the other variables. It is thus conceivable that the four factors in her model will operate differently for male and female students. To test this hypothesis, five 2 x 2 MANOVAs were conducted to assess gender differences on Astin's four factors: motivation, work expectations, sex-role socialization, and structure of opportunity. In each analysis, gender was crossed with one of the following variables: (a) students' language of origin, (b) students' length of residency/stay in Canada, (c) whether students had previous job experience, (d) whether students had selected a major, and (e) whether students had decided on an occupation.

Language of origin. Astin (1984) emphasizes the importance of socialization in educational and career decisions. It is conceivable that language of origin might affect socialization experiences and therefore might be a factor which has a different effect for

male and female students. The results of a 2 (gender) x 2 (language of origin) MANOVA indicated a significant main effect for gender, $F(4, 242) = 2.71, p < .05$, and language of origin, $F(4, 242) = 4.72, p < .01$. The interaction effect was not significant, $F(4,242) = .63, p = .64$. Follow-up univariate F tests indicated that female students scored significantly higher than male students on the socialization sub-scale, $F(1, 245) = 7.70, p < .01$; and structure of opportunity sub-scale, $F(1, 245) = 3.94, p < .05$. In other words, the socialization experiences of female students was more expanding and less gender stereotypic than that of male students. They also were more aware of the economic conditions, realities in the job market, and opportunities available to women than were male students. Results of univariate F tests indicated that students whose language of origin was English had significantly more expanding socialization experiences than did students whose language of origin was not English, $F(1, 245) = 17.04, p < .01$. Table 2 presents the mean scores and standard deviations for this analysis.

Length of residency/stay in Canada. Since socialization plays an important role in Astin's (1984) model, it is conceivable that length of residency in Canada might be a factor which has a different effect for male and female students. In addition to the gender main effect previously reported, the results of a 2 (gender) x 2 (length of residency/stay in Canada) MANOVA indicated that the main effect for length of residency was not significant, $F(4, 242) = 1.89, p = .11$. The interaction effect was not significant, $F(4,242) = .70, p = .59$. Table 3 presents the mean scores and standard deviations for this analysis.

Table 2

Means and Standard Deviations of a 2(Gender) x 2(Language of Origin) MANOVA

Subscale	Language of origin	Gender: Male (n=82)	Gender: Female (n=167)	Total (n=249)
Motivation				
	English (n=207)	12.31 (4.12)	12.73 (4.11)	12.60 (4.11)
	Non-English (n=42)	11.65 (4.98)	13.00 (3.59)	12.36 (4.30)
	Total (n=249)	12.15 (4.32)	12.77 (4.03)	
Expectation				
	English	11.74 (4.58)	12.08 (3.86)	11.98 (4.08)
	Non-English	10.75 (4.89)	12.73 (3.31)	11.79 (4.21)
	Total	11.50 (4.65)	12.17 (3.79)	
Socialization				
	English	9.89 (4.66)	11.05 (4.49)	10.70** (4.56)
	Non-English	5.60 (4.78)	8.82 (4.85)	7.29** (5.03)
	Total	8.84** (5.02)	10.75** (4.58)	
Structure of opportunity				
	English	6.07 (4.58)	6.71 (3.86)	6.52 (3.19)
	Non-English	5.75 (4.89)	7.36 (3.31)	6.60 (3.90)
	Total	5.99* (3.94)	6.80* (2.94)	

Note. The numbers in parenthesis are standard deviations. Asterisks across rows indicate significant language difference on the sub-scale scores; asterisks across columns indicate significant gender difference on the sub-scale scores.

*$p < .05$. ** $p < .01$.

Table 3

Means and Standard Deviations of a 2(Gender) x 2(Length of Residency) MANOVA

Subscale	Length of residency	Gender: Male (n=81)	Gender: Female (n=168)	Total (n=249)
Motivation				
	Since birth (n=203)	12.39 (4.12)	12.92 (4.04)	12.76 (4.06)
	Less than 15 years (n=46)	11.16 (4.93)	11.93 (3.88)	11.61 (4.31)
	Total (n=249)	12.10 (4.32)	12.76 (4.02)	
Expectation				
	Since birth	11.79 (4.51)	12.33 (3.70)	12.17 (3.97)
	Less than 15 years	10.26 (5.00)	11.33 (4.10)	10.89 (4.47)
	Total	11.43 (4.64)	12.17 (3.78)	
Socialization				
	Since birth	9.39 (4.83)	10.92 (4.48)	10.45 (4.63)
	Less than 15 years	6.74 (5.24)	9.70 (5.08)	8.48 (5.29)
	Total	8.77** (5.02)	10.73** (4.58)	
Structure of opportunity				
	Since birth	6.19 (3.87)	6.76 (2.88)	6.59 (3.21)
	Less than 15 years	4.90 (4.00)	6.93 (3.25)	6.09 (3.67)
	Total	5.89* (3.91)	6.79* (2.93)	

Note. The numbers in parenthesis are standard deviations. Asterisks across columns indicate significant gender difference on the sub-scale scores.

* $p < .05$. ** $p < .01$.

Job experience. Job experience is part of individuals' career socialization and contributes to their work expectations. It is thus conceivable that job experience might be a factor which has a different effect for male and female students. In addition to the gender main effect previously reported, the results of a 2 (gender) x 2 (job experience) MANOVA indicated a significant main effect for job experience, $F(4, 244) = 2.43$, $p < .05$. The interaction effect was not significant, $F(4,244) = .46$, $p = .77$. Follow-up univariate F tests showed that students who had previous job experience scored significantly higher than students who had no previous job experience on the motivation sub-scale, $F(1,247) = 7.07$, $p < .01$; expectation sub-scale, $F(1, 247) = 4.24$, $p < .05$, and socialization sub-scale, $F(1, 247) = 4.82$, $p < .05$. This suggests that students with previous job experience were more motivated towards achieving their goals, were more aware of their own capabilities, strengths, and needs, and had more expanding socialization experiences than did students with no previous job experience. Table 4 presents the mean scores and standard deviations for this analysis.

Major selection. Selecting an academic major is part of university students' career development. It is conceivable that whether or not a student had selected a major might be a factor which has a different effect for male and female students. In addition to the gender main effect previously reported, the results of a 2 (gender) x 2 (major selection) MANOVA indicated a significant main effect for major selection, $F(4, 243) = 3.57$, $p < .01$. The interaction effect was not significant, $F(4,243) = 1.10$, $p = .36$. Follow-up univariate F tests indicated that students who had selected an academic major scored significantly higher than students who had not on the expectation sub-scale, $F(1, 246) =$

10.22, $p < .01$. In other words, students who had selected a major were more aware of their own capabilities, strengths, and needs than did students who had not selected a major. Table 5 presents the mean scores and standard deviations for this analysis.

Occupation decision. Making a decision about one's occupation is part of individuals' career development. It is conceivable that whether or not a student had made an occupation decision might be a factor which has a different effect for male and female students. In addition to the gender main effect previously reported, the results of a 2 (gender) x 2 (occupation decision) MANOVA indicated a significant main effect for occupation decision, $F(4, 242) = 8.96$, $p < .01$. The interaction effect was not significant, $F(4,242) = .44$, $p = .78$. Follow-up univariate F tests showed that students who had decided on an occupation scored significantly higher on the motivation sub-scale, $F(1,245) = 5.16$, $p < .05$; expectation sub-scale, $F(1, 245) = 34.78$, $p < .01$, and socialization sub-scale, $F(1, 245) = 5.41$, $p < .05$. It suggests that students who had decided on an occupation were more motivated towards achieving their goals, were more aware of their own capabilities, strengths, and needs, and had more expanding socialization experiences than did students who had not. Table 6 presents the mean scores and standard deviations for this analysis.

Table 4

Means and Standard Deviations of a 2(Gender) x 2(Job Experience) MANOVA

Subscale	Job experience	Gender: Male (n=83)	Gender: Female (n=168)	Total (n=251)
Motivation				
	Yes (n=211)	12.78 (4.17)	12.91 (3.98)	12.87** (4.02)
	No (n=40)	10.25 (4.24)	11.65 (4.28)	10.95** (4.27)
	Total (n=251)	12.17 (4.30)	12.76 (4.02)	
Expectation				
	Yes	11.79 (4.53)	12.38 (3.66)	12.20* (3.94)
	No	10.60 (4.88)	10.65 (4.36)	10.63* (4.57)
	Total	11.51 (4.62)	12.17 (3.78)	
Socialization				
	Yes	9.25 (4.92)	10.95 (4.51)	10.45* (4.69)
	No	7.55 (5.10)	9.05 (4.93)	8.30* (5.01)
	Total	8.84** (4.99)	10.73** (4.58)	
Structure of opportunity				
	Yes	6.02 (3.81)	6.84 (2.84)	6.59 (3.17)
	No	5.80 (4.36)	6.40 (3.60)	6.10 (3.96)
	Total	5.96* (3.92)	6.79* (2.93)	

Note. The numbers in parenthesis are standard deviations. Asterisks across rows indicate significant difference between students who had previous job experience and those who had not on the sub-scale scores. Asterisks across columns indicate significant gender difference on the sub-scale scores.

* $p < .05$. ** $p < .01$.

Table 5

Means and Standard Deviations of a 2(Gender) x 2(Major Selection) MANOVA

Subscale	Major selection	Gender: Male (n=83)	Gender: Female (n=167)	Total (n=250)
Motivation				
	Yes (n=167)	12.63 (3.93)	12.93 (3.73)	12.83 (3.79)
	No (n=83)	11.22 (4.92)	12.39 (4.58)	12.01 (4.69)
	Total (n=250)	12.17 (4.30)	12.75 (4.03)	
Expectation				
	Yes	11.98 (4.66)	12.87 (3.65)	11.57** (4.03)
	No	10.52 (4.45)	10.70 (3.58)	10.64** (3.86)
	Total	11.51 (4.62)	12.14 (3.76)	
Socialization				
	Yes	8.61 (5.17)	10.67 (4.85)	9.98 (5.04)
	No	9.33 (4.65)	10.80 (4.08)	10.33 (4.30)
	Total	8.84** (4.99)	10.71** (4.59)	
Structure of opportunity				
	Yes	6.34 (3.98)	6.70 (2.87)	6.58 (3.28)
	No	5.19 (3.75)	6.91 (3.08)	6.35 (3.39)
	Total	5.96* (3.92)	6.77* (2.94)	

Note. The numbers in parenthesis are standard deviations. Asterisks across rows indicate significant difference between students who had selected a major and those who had not on the sub-scale scores; asterisks across columns indicate significant gender difference on the sub-scale scores.

* $p < .05$. ** $p < .01$.

Table 6

Means and Standard Deviations of a 2(Gender) x 2(Occupation Decision) MANOVA

Subscale	Occupation decision	Gender: Male (n=81)	Gender: Female (n=168)	Total (n=249)
Motivation				
	Decided (n=164)	13.02 (3.72)	13.12 (3.92)	11.92* (4.19)
	Undecided (n=95)	11.49 (4.32)	12.15 (4.14)	13.09* (3.85)
	Total (n=249)	12.40 (4.02)	12.76 (4.02)	
Expectation				
	Decided	13.02 (3.65)	13.28 (3.55)	13.20** (3.57)
	Undecided	10.12 (4.16)	10.27 (3.40)	10.22** (3.66)
	Total	11.84 (4.10)	12.17 (3.78)	
Socialization				
	Decided	9.94 (4.86)	11.03 (4.46)	10.69* (4.60)
	Undecided	7.79 (4.36)	10.21 (4.79)	9.37* (4.76)
	Total	9.06** (4.75)	10.73** (4.58)	
Structure of opportunity				
	Decided	6.40 (3.73)	6.89 (3.97)	6.73 (3.22)
	Undecided	5.76 (3.95)	6.61 (2.88)	6.32 (3.30)
	Total	6.14* (3.81)	6.79* (2.93)	

Note. The numbers in parenthesis are standard deviations. Asterisks across rows indicate significant difference between students who had decided on an occupation and those who had not on the sub-scale scores; asterisks across columns indicate significant gender difference on the sub-scale scores.

* $p < .05$. ** $p < .01$.

Gender was not crossed with other demographic variables because of insufficient number of students in each cell. One-way MANOVAs and t-tests were conducted to assess between-group differences on the remaining demographics variables and these results are reported later in the chapter. To summarize, the findings indicated that there were significant differences between male and female students. More specifically, female students scored significantly higher than male students on the socialization sub-scale and structure of opportunity sub-scale. There were also significant differences between subgroups on four demographic variables, namely: (a) students' language of origin, (b) whether students had previous job experience, (c) whether students had selected a major, and (d) whether students had decided on an occupation. These findings are summarized in Table 7.

Table 7

Major Findings of Research Question No. 1

	Motivation	Expectation	Socialization	Structure of opportunity
Gender			**	*
Language of origin			**	
Job experience	**	*	*	
Major selection		**		
Occupation decision	*	**	*	

* $p < .05$. ** $p < .01$.

Research Question No. 2

Since socialization plays a significant role in Astin's (1984) model, it is conceivable that the experiences of students whose language of origin is English and those whose language of origin is not English are likely to be different. Three 2 x 2 MANOVAs were conducted to assess language differences on Astin's four factors: motivation, work epectations, socialization, and structure of opportunity. In these analyses, language was crossed with: (a) students' length of residency/stay in Canada, (b) whether students had previous job experience, and (c) whether students had decided on an occupation. Language of origin was not crossed with other demographic variables because of insufficient number of students in each cell.

Length of residency/stay in Canada. Individuals' length of residency in a country may determine their socialization experiences. It is conceivable that length of residency in Canada might be a factor which has a different effect for students whose language of origin was English and whose language of origin was not English. In addition to the language main effect previously reported, the results of a 2 (language of origin) x 2 (length of residency/stay in Canada) MANOVA indicated that the main effect for length of residency was not significant, $F(4, 242) = 2.10$, $p = .08$. The interaction effect was not significant, $F(4,242) = 2.06$, $p = .09$. Table 8 presents the mean scores and standard deviations for this analysis.

Job experience. As previously mentioned, job experience is part of individuals' career socialization and contributes to their work expectations. It is thus conceivable that job experience might be a factor which has a different effect for students whose language

of origin was English and those whose language of origin was not English. In addition to the language main effect previously reported, the results of a 2 (language of origin) x 2 (job experience) MANOVA indicated a significant main effect for job experience, $F(4, 244) = 4.07$, $p < .01$. The interaction effect was not significant, $F(4,244) = 2.38$, $p = .06$. Follow-up univariate F tests showed that students who had previous job experience scored significantly higher than students who had no previous job experience on the motivation sub-scale, $F(1, 247) = 11.62$, $p < .01$; expectation sub-scale, $F(1, 247) = 8.22$, $p < .01$, and socialization sub-scale, $F(1, 247) = 5.27$, $p < .05$. It suggests that students who had previous job experience were more motivated towards achieving their goals, were more aware of their own capabilities, strengths, and needs, and had more expanding socialization experiences than did students who had no previous job experience. Table 9 presents the mean scores and standard deviations for this analysis.

Occupation decision. Making a decision about one's occupation is part of individuals' career development. It is conceivable that occupation decision might be a factor which has a different effect for students whose language of origin was English and those whose language of origin was not English. In addition to the language main effect previously reported, the results of a 2 (language of origin) x 2 (occupation decision) MANOVA indicated that a significant main effect for occupation decision, $F(4, 242) = 7.48$, $p < .01$. The interaction effect was not significant, $F(4,242) = .89$, $p = .47$. Follow-up univariate F tests showed that students who had decided on an occupation scored significantly higher on the expectation sub-scale, $F(1, 245) = 26.94$, $p < .01$. It suggests that students who had decided on an occupation were more aware of their own

capabilities, strengths, and needs than did students who had not. Table 10 presents the mean scores and standard deviations for this analysis.

Table 8

Means and Standard Deviations of a 2(Language of Origin) x 2(Length of Residency) MANOVA

Subscale	Length of residency	Language of origin: English (n=207)	Language of origin: Non-English (n=42)	Total (n=249)
Motivation				
	Since birth (n=202)	12.58 (4.09)	15.55 (2.58)	12.74 (4.07)
	Less than 15 years (n=47)	12.69 (4.47)	11.16 (4.17)	11.68 (4.29)
	Total (n=249)	12.59 (4.11)	12.31 (4.26)	
Expectation				
	Since birth	12.07 (4.03)	14.09 (2.30)	12.18 (3.98)
	Less than 15 years	11.06 (4.71)	10.68 (4.40)	10.81 (4.46)
	Total	11.99 (4.08)	11.57 (4.21)	
Socialization				
	Since birth	10.62 (4.60)	8.82 (5.67)	10.52 (4.67)
	Less than 15 years	12.06 (4.43)	6.23 (5.03)	8.21 (5.54)
	Total	10.73** (4.60)	6.90** (5.26)	
Structure of opportunity				
	Since birth	6.57 (3.20)	7.73 (3.77)	6.63 (3.24)
	Less than 15 years	5.88 (3.10)	6.10 (3.97)	6.02 (3.66)
	Total	6.52 (3.19)	6.52 (3.94)	

Note. The numbers in parenthesis are standard deviations. Asterisks across columns indicate significant language difference on the sub-scale scores.

**$p < .01$.

Table 9

Means and Standard Deviations of a 2(Language of origin) x 2(Job experience) MANOVA

Subscale	Job experience	Language of origin: English (n=208)	Language of origin: Non-English (n=43)	Total (n=251)
Motivation				
	Yes (n=210)	12.75 (4.13)	13.61 (3.43)	12.88** (4.04)
	No (n=41)	11.59 (3.84)	9.33 (4.81)	10.93** (4.22)
	Total (n=251)	12.59 (4.10)	12.42 (4.27)	
Expectation				
	Yes	12.07 (4.07)	12.81 (3.28)	12.18** (3.96)
	No	11.55 (4.15)	8.75 (5.07)	10.73** (4.56)
	Total	12.00 (4.07)	11.67 (4.22)	
Socialization				
	Yes	10.81 (4.63)	8.06 (5.11)	10.40* (4.79)
	No	10.31 (4.35)	4.33 (4.83)	8.56* (5.22)
	Total	10.74** (4.59)	7.02** (5.26)	
Structure of opportunity				
	Yes	6.62 (3.08)	6.45 (3.78)	6.60 (3.18)
	No	6.07 (3.95)	6.67 (4.33)	6.24 (4.02)
	Total	6.54 (3.21)	6.51 (3.90)	

Note. The numbers in parenthesis are standard deviations. Asterisks across rows indicate significant difference between students who had previous job experience and those who had not on the sub-scale scores; asterisks across columns indicate significant language difference on the sub-scale scores.

* $p < .05$. ** $p < .01$.

Table 10

Means and Standard Deviations of a 2(Language of Origin) x 2(Occupation Decision) MANOVA

Subscale	Occupation decision	Language of origin: English (n=207)	Language of origin: Non-English (n=42)	Total (n=249)
Motivation				
	Decided (n=154)	13.07 (3.96)	13.29 (3.38)	13.11 (3.85)
	Undecided (n=95)	11.90 (4.23)	11.71 (4.14)	11.87 (4.19)
	Total (n=249)	12.61 (4.10)	12.76 (3.67)	
Expectation				
	Decided	13.14 (3.71)	13.25 (3.17)	13.16** (3.61)
	Undecided	10.43 (3.59)	9.21 (4.19)	10.25** (3.69)
	Total	12.08 (3.89)	11.90 (3.99)	
Socialization				
	Decided	11.42 (4.18)	7.04 (5.46)	10.62 (4.73)
	Undecided	9.89 (4.71)	7.07 (5.23)	9.47 (4.86)
	Total	10.82** (4.45)	7.05** (5.32)	
Structure of opportunity				
	Decided	6.73 (3.11)	6.68 (3.80)	6.72 (3.23)
	Undecided	6.35 (3.28)	6.71 (3.81)	6.40 (3.34)
	Total	6.58 (3.17)	6.69 (3.76)	

Note. The numbers in parenthesis are standard deviations. Asterisks across rows indicate significant difference between students who had decided on an occupation and those who had not on the sub-scale scores; asterisks across columns indicate significant language difference on the sub-scale scores.

$^{**}p < .01$.

To summarize, the findings indicated that there was significant difference between students whose language of origin was English and those whose language of origin was not. More specifically, students in the former group scored significantly higher than students in the latter group on the socialization sub-scale. The results of 2 x 2 MANOVAs indicated significant differences on Astin's four factors when language of origin was crossed with: (a) whether students had previous job experience, and (b) whether students had decided on an occupation. These findings are summarized in Table 11.

Table 11

Major Findings of Research Question No. 2

	Motivation	Expectation	Socialization	Structure of opportunity
Language of origin			**	
Job experience	**	**	*	
Occupation decision		**		

* $p < .05$. ** $p < .01$.

Supplementary Analyses

Three one-way MANOVAs and three t-tests were conducted to assess between-group differences on the remaining demographic variables.

Age. In the questionnaire, there were a total of 5 age groups. However, there were only 3 students in the age group under 17, 7 students in the age group 25-29, and 5 students in the age group 30 or over. Thus, in the data analysis, responses of the 3

students in the age group under 17 were included in the age group 17-20, and responses of the 12 students in the latter 2 groups were included in the age group 21-24. As a result, students were grouped according to 2 age groups, 20 & below, 21 & above in the data analysis. The data were analyzed using a t-test for independent samples. The results of the t-test indicated that the two groups differed significantly on the socialization sub-scale, $t(251) = 2.49$, $p < .05$, but not on the other three sub-scales. This suggests that students in the age group 20 & below had more expanding socialization experiences than students in the age group 21 & above.

Residency status. Regarding residency status, there were only 9 students who described themselves as landed immigrants and 11 students who described themselves as visa students. Thus, in the data analysis, they were combined into one group. The data were analyzed using a t-test for independent samples. The results of the t-test indicated that the two groups differed significantly on the expectation sub-scale, $t(251) = 2.30$, $p < .05$, but not on the other three sub-scales. This suggests that students who were Canadian citizens were more aware of their capabilities, strengths, and needs than students who were landed immigrants.

Academic standing. For academic standing, there was only one student who described his/her academic standing as 64% or below. Thus, this student's response was combined with the 65-69% to produce a category of 69% and below. The results of a one-way MANOVA indicated significant differences between students across the four levels of self-reported academic standing, $F(4, 244) = 2.91$, $p < .01$. Results of univariate F tests indicated significant differences on the motivation sub-scale, $F(1, 247) = 8.11$, $p < .01$;

expectation sub-scale, $F(1, 247) = 6.11$, $p < .01$; and structure of opportunity sub-scale, $F(1, 247) = 2.69$, $p < .05$.

Post hoc analysis using the Student-Newman-Keuls (SNK) test indicated that students whose self-reported academic standing was 69% and below scored significantly lower on the motivation sub-scale than all other groups. It suggests that students in the former group were less motivated towards achieving their goals than students in the other three groups. Furthermore, students who reported their academic standing as 80% or higher scored significantly higher than students who reported their academic standing as 79% or below. The SNK test also showed that students who said their academic standing was 79% or below scored significantly lower on the expectation sub-scale than students who said their academic standing was 80% or higher. It suggests that students in the former two groups were less aware of their own capabilities, strengths, and needs than students in the latter two groups. The SNK test also indicated that students who said their academic standing was 69% and below scored significantly lower on the structure of opportunity sub-scale than students whose academic standing was between 70% and 89%. It suggests that students in the former group were less aware of the economic conditions, realities in the job market, and opportunities available to women than were students in the latter two groups.

Highest level of education. Based on participant responses, the sample was divided into two groups; those who were entering university directly from high school and those who already had some post-secondary education. The data were analyzed using a t-test for independent samples. The results indicated that there were no significant

differences between the two groups of students on any of the four sub-scales.

Level of certainty (remain in proposed major). Students were asked to indicate how certain they were that they would remain in their proposed major. The five levels of certainty were: I probably will not remain, I may not remain, I probably will remain, I definitely will remain, I am not sure. The results of a one-way MANOVA indicated significant differences between students across the five levels of certainty, $F(5, 223) = 1.79$, $p < .05$. Results of univariate F tests indicated significant differences on the expectation sub-scale, $F(1, 227) = 2.58$, $p < .05$. Post hoc analysis using the SNK test indicated that students who believed they would definitely remain in their proposed major scored significantly higher on the expectation sub-scale than students who were not sure whether they would remain in their proposed major. It suggests that students in the former group were more aware of their own capabilities, strengths, and needs than did students in the latter group.

Level of certainty (remain in proposed occupation). Students were asked to indicate how certain they were that they would remain in their proposed occupation. The five levels of certainty were: I probably will not remain, I may not remain, I probably will remain, I definitely will remain, I am not sure. The results of a one-way MANOVA indicated significant difference between students across levels of certainty, $F(5, 208) = 2.33$, $p < .01$. Results of univariate F tests indicated significant difference on the expectation sub-scale, $F(1, 212) = 4.81$, $p < .01$. Post hoc analysis using the SNK test indicated that students who were not sure whether they would remain in their proposed occupation scored significantly lower on the expectation sub-scale than students who

believed that they would probably remain and those who believed that they would definitely remain in their proposed occupation. It suggests that students in the former group were less aware of their own capabilities, strengths, and needs than were students in the latter two groups.

The SNK test also showed that students who believed they probably would not remain in their proposed occupation scored significantly lower on the expectation sub-scale than students who believed that they would definitely remain in their proposed occupation. It suggests that students in the former group were less aware of their own capabilities, strengths, and needs than did students in the latter two groups.

Table 12 presents the mean scores and standard deviations of the supplementary analyses.

Table 12

Means and Standard Deviations of the Supplementary Analyses

	Dependent measures			
Demographics	Motivation	Expectation	Socialization	Structure of opportunity
Age				
17-20 (n=226)	12.61 (4.01)	12.03 (3.93)	10.35* (4.57)	6.61 (3.32)
21-24 (n=27)	12.19 (4.89)	11.22 (5.19)	7.89 (6.74)	5.78 (3.32)
Total (n=253)	12.57 (4.11)	11.95 (4.08)	10.08 (4.89)	6.52 (3.32)
Residency status				
Canadian citizen (n=233)	12.70 (4.05)	12.12* (4.02)	10.23 (4.83)	6.64 (3.27)
Non-Canadian citizen (n=20)	11.00 (4.57)	9.95 (4.36)	8.35 (5.39)	5.15 (3.72)
Total (n=253)	12.57 (4.11)	11.95 (4.08)	10.08 (4.89)	6.52 (3.32)

Table 12 (continued)

Demographics	Motivation	Expectation	Socialization	Structure of opportunity
	Dependent measures			
Academic standing				
90-100% (n=24)	13.67** (3.83)	14.00+ (3.80)	11.54 (4.34)	6.67++ (3.05)
80-89% (n=109)	13.49 (3.51)	12.60 (3.71)	10.44 (4.61)	6.95 (3.93)
70-79% (n=102)	12.02 (4.20)	11.30 (4.14)	9.52 (5.24)	6.43 (3.19)
65-69% (n=16)	8.94 (3.87)	9.56 (3.78)	9.81 (4.78)	4.50 (3.18)
Total (n=251)	12.62 (4.02)	12.01 (4.02)	10.13 (4.88)	6.55 (3.30)
Highest level of education				
High school graduate (n=212)	12.64 (3.92)	11.97 (4.00)	10.23 (4.74)	6.58 (3.32)
Postsecondary school (n=41)	12.20 (4.99)	11.83 (4.50)	9.34 (5.59)	6.24 (3.33)
Total (n=253)	12.57 (4.11)	11.95 (4.01)	10.08 (4.89)	6.52 (3.32)
Level of certainty (remain in proposed major)				
Probably will not remain (n=16)	11.88 (3.22)	10.19+ (4.32)	11.25 (4.75)	6.13 (3.65)
May not remain (n=17)	12.82 (4.31)	11.77 (3.62)	8.41 (6.10)	7.00 (2.32)
Probably will remain (n=100)	12.62 (3.53)	11.99 (3.66)	10.15 (4.35)	6.61 (3.47)
Definitely will remain (n=64)	12.70 (4.51)	13.08 (4.96)	9.20 (5.79)	6.27 (3.29)
Not sure (n=31)	11.71 (4.45)	10.71 (4.10)	10.68 (4.45)	6.26 (3.27)
Total (n=228)	12.48 (3.98)	11.98 (4.22)	9.90 (4.99)	6.46 (3.31)

Table 12 (continued)

Demographics	Dependent measures: Motivation	Expectation	Socialization	Structure of opportunity
Level of certainty (remain in proposed occupation)				
Probably will not remain (n=11)	13.00 (5.14)	11.73+ (5.18)	9.73 (5.39)	6.09 (3.70)
May not remain (n=10)	11.20 (2.57)	12.00 (3.59)	10.70 (5.60)	7.10 (2.81)
Probably will remain (n=97)	12.79 (3.95)	12.39 (4.05)	10.00 (4.79)	6.37 (3.30)
Definitely will remain (n=45)	13.24 (3.97)	13.91 (3.76)	9.62 (5.30)	6.69 (3.64)
Not sure (n=50)	11.44 (4.22)	10.32 (4.10)	10.48 (5.00)	6.66 (3.24)
Total (n=213)	12.51 (4.06)	12.17 (4.19)	10.05 (4.98)	6.53 (3.34)

Note. The numbers in parenthesis are standard deviations.

*$p < .05$.

**for motivation, mean differences greater than 1.45 are significant, $p < .05$.
+for expectation, mean differences greater than 2.20 are significant, $p < .05$.
++for structure of opportunity, mean differences greater than 1.90 are significant, $p < .05$.

Research Question No. 3

Astin (1984) suggested that men and women share a common set of work motivations. What differentiates their work expectations and career outcomes is the mediating effect of the other variables in her model. This suggests that motivation is somewhat independent from the other three variables. To address the third research question, Pearson product-moment correlations were calculated to assess the relationships between Astin's four factors for the entire sample.

Entire sample. The data showed that except for the non-significant relationship between socialization and structure of opportunity, all the other factors were inter-related. These results are presented in Table 13.

Table 13

Correlations Between the Four Dependent Measures for the Entire Sample (n=253)

	Expectation	Socialization	Structure of opportunity
Motivation	.51**	.27**	.34**
Expectation		.38**	.37**
Socialization			.11

* p < .05. ** p < .01.

It is conceivable that the relationships between the four factors might be different for different sub-groups of students. To address that possibility, Pearson product-moment correlations were calculated to assess the relationships between Astin's four factors for four sub-groups of students: (a) male students, (b) female students, (c) students whose language of origin was English, and (d) students whose language of origin was not English.

Four sub-groups of students. For the correlations for male students, female students, and students whose language of origin was English, the relationships between the four factors were all significant and in the moderate range, ranging from .22 to .58. These results are presented in Tables 14, 15, and 16.

Table 14

Correlations Between the Four Dependent Measures for Male Students (n=83)

	Expectation	Socialization	Structure of opportunity
Motivation	.58**	.34**	.37**
Expectation		.49**	.54**
Socialization			.25**

* $p < .05$. ** $p < .01$.

Table 15

Correlations Between the Four Dependent Measures for Female Students (n=168)

	Expectation	Socialization	Structure of opportunity
Motivation	.48**	.24**	.23**
Expectation		.29**	.26**
Socialization			.22**

** $p < .01$.

Table 16

Correlations Between the Four Dependent Measures for Students Whose Language of Origin was English (n=208)

	Expectation	Socialization	Structure of opportunity
Motivation	.50**	.28**	.28**
Expectation		.39**	.35**
Socialization			.30**

** $p < .01$.

For students whose language of origin was not English, the pattern was markedly different from the rest. Expectation was significantly related to the other three factors, but the other three factors seemed to be independent of each other. These results are presented in Table 17.

Table 17

Correlations Between the Four Dependent Measures for Students Whose Language of Origin was Not English (n=42)

	Expectation	Socialization	Structure of opportunity
Motivation	.56**	.27	.20
Expectation		.41**	.48**
Socialization			.09

** $p < .01$.

In sum, the data consistently show that the four factors in Astin's model were not independent for male students, female students, and students whose language of origin was English. However, for students whose language of origin was not English, the situation is quite different. For this group of students, expectation is related to the other three factors and the other three factors seem to be independent of each other. Thus, for students whose language of origin is not English, non gender stereotypic socialization experiences seem to influence expectation, but not work motivation or perceived structure of opportunity. In a similar way, work motivation is related to expectation, but not to socialization or structure of opportunity. A similar situation exists for structure of opportunity.

Chapter 5: Discussion

In general, the findings of the present study suggest that the four factors in Astin's (1984) model namely, motivation, work expectations, socialization, and structure of opportunity all play a role in the career development of this group of first-year university students. Consistent with the findings of Scott and Hatalla (1990), and Poole and his colleagues (1991), the four factors contribute differently to the career development of different sub-groups of students. Data from the present study further suggest that the four factors are related in ways quite different from that suggested by Astin's model. In this chapter, discussion will focus on (a) the major findings of the study, (b) limitations of the study, (c) future research directions, and (d) implications of the study.

Major Findings of the Study

The findings of the study indicate that there were significant gender differences when gender was crossed with four demographic variables namely, language of origin, length of residency, major selection, and occupation decision. Examination of univariate F tests indicates significant differences on the socialization sub-scale and the structure of opportunity sub-scale. These findings support Astin's (1984) contention that socialization experiences and structure of opportunity shape occupational expectations and decisions. According to Astin's model, men and women share a common set of work motivations. What differentiates their career decisions and outcomes are the influences of mediating variables such as socialization and structure of opportunity.

Further exploration of the data indicate that female students in the study have higher mean scores than male students on both the socialization sub-scale and the

structure of opportunity sub-scale. This suggests that the socialization experiences of this group of female students were more expanding than that of male students. They also had more previous career-related experience than male students had. As suggested in the questionnaire items, some female students had volunteer experience which helped to shape their career interests while others had attended workshops to gather career-related information before they entered university. The questionnaire items also suggest that this group of female students had received support from parents and/or significant others to pursue higher education and to develop their own careers.

By the same token, the career-related experiences of this group of female students may have heightened their awareness of the structure of opportunity in the world of work. The questionnaire items suggest that these female students were aware that women were playing a more significant role in the job market. They were also aware that gender discrimination may still be present in the world of work. In fact, researchers have documented that despite increased participation of women in the labor force, their opportunity is still limited by restricted occupational choices, unequal pay, and discrimination (e.g., Brooks, 1990; Ihle et al., 1996; Murrell et al., 1991; U. S. Equal Opportunity Commission, 1991). As suggested in Astin's (1984) model, such information is important to female students when they choose academic majors and subsequent career paths.

The findings of the study further indicate that students who had previous job experience had higher mean scores on the motivation sub-scale and the expectation sub-scale than students who had no previous job experience. It suggests that students in the

former group were more motivated towards achieving their goals and were more aware of their own capabilities, strengths, and needs. Similarly, students who had selected an academic major and those who had decided on an occupation also scored higher on the two sub-scales than did students who had not. These findings further confirmed the role motivation and expectation play in one's career decisions as suggested in Astin's (1984) model. Students who had previous job experience were aware of their own interests, strengths, and needs. Job experience may also be part of these students' career socialization process which help refine their career interests and goals. The case is similar for students who had selected an academic major and those who had decided on an occupation. In line with Erikson's (1950, 1968) ideas, these students had settled on a personal identity characterized by such traits as goal-directed behavior, awareness of inner resources, and ability to utilize these resources (Adams, 1992; Markstrom-Adams, 1992; Waterman, 1992). Students in the identity-achieved group were more likely to work hard to achieve their goals and to seek out opportunities to best utilize their potentials. Students in the moratorium group may not be aware of their strengths and goals, and were not sure what they expected in their future career. It is very likely that these students are concentrated in the faculty of General Studies. By enrolling in the faculty of General Studies, these students are exposed to different alternatives and are able to experiment with different roles in a "safe haven". This period of exploration is indeed seen as useful and healthful as students are given more time to search for a sense of identity before they make any specific commitments (Marcia, 1980).

The data further suggest that students whose language of origin was English

differed significantly from students whose language of origin was not English. More specifically, students in the former group had significantly higher mean scores on the socialization sub-scale than did students in the latter group. Since students' culture of origin was not obtained in the questionnaire, it was assumed that the two groups of students whose language of origin differed belonged to different cultural groups. This assumption is in line with the notion that individuals from different cultures are socialized in different ways (e.g., Harter, 1988; Valsiner, 1989). For example, in a study on the self-concept of college students from Hong Kong, Japan, and the United States, it was found that Chinese students emphasized more on familism and the desire to identify with one's family. This finding echoed the family-orientation of the Chinese culture (Bond & Cheung, 1983).

In addition, the questionnaire item content suggests that students with lower scores on the socialization sub-scale may have been socialized to believe that career was secondary for women, and that women should not be independent. This may indeed be a reflection on the socialization process of certain cultures. Chinese women for example, are socialized to be dependent, nurturant, and less successful than men. They are also expected to demonstrate "female" traits and to conform to a set of restricted role expectations (e.g., Chiu, 1990; Wang & Creedon, 1989). In a study based on the Hong Kong 1981 census data (Tsang, 1993), it was found that gender was still a crucial factor influencing the educational attainment and status attainment of men and women in Hong Kong. Tsang (1993) maintained that women experienced more constraints and less encouragement than men during the educational and/or status attainment process. He

attributed these findings to the different socialization of men and women in Hong Kong who grew up with different expectations and aspirations. If such is the case for students whose language of origin was not English in the present study, counselors and faculty will play an important role in assisting these students to deal with both internal and external barriers during their academic and career development process.

When examining the relationships between Astin's (1984) four factors, the data consistently show that the four factors were inter-related for male students, female students, and students whose language of origin was English. However, for students whose language of origin was not English, the pattern was different. For this group of students, expectation was significantly related to the other three factors. But the other three factors seemed to be independent of each other. It is important to note that there were only 42 students in the present study whose language of origin was not English. The findings may have been obscured by the small number of students compared to students in the other three sub-groups. Besides, Astin's (1984) model was formulated based on her knowledge and exposure to literature generated in the western world. The worldview that her model represented may be quite different from the worldviews of these 42 students who spoke languages other than English as their language of origin.

It was further found that expectation was positively and significantly related to the other three variables. This was the case for the entire sample, male students, female students, students whose language of origin was English, and students whose language of origin was not English. It suggests that work expectation was the most operative factor in Astin's (1984) model for this group of first-year university students. In other words, for

this group of students, awareness of their own capabilities, strengths, and needs will most likely enhance their academic and career development process. Furthermore, the strongest positive relationship was obtained between motivation and work expectation. Such was the case for the entire sample, as well as the four sub-groups of students aforementioned. It suggests that students who were more aware of their interests, strengths, and goals were more motivated to achieve their goals, and vice versa. This finding is contrary to Astin's (1984) model which has no direct path linking motivation and work expectation. In fact, Astin (1984) maintained that work expectation was a function of one's socialization and perceived structure of opportunity, but not of motivation.

Among this group of students, the weakest relationship was found between socialization and structure of opportunity. This finding is again antithetical to Astin's (1984) claim that the two constructs are inter-related. According to Astin (1984), "the socialization process probably sets limits to changes in the structure of opportunity, whereas the structure of opportunity ultimately influences the values that are transmitted through the socialization process" (p. 122). There are at least two possible explanations to the discrepancies between findings in the present study and Astin's (1984) claim. First of all, Astin's model has been criticized as lacking in both operational definitions of the proposed constructs and specific hypotheses, which make empirical test of the model difficult (e.g., Brooks, 1990; Hackett et al., 1991; Harmon, 1984). An obvious example is her conceptualization of motivation which includes three basic needs namely, survival, pleasure, and contribution. These three needs could well be three separate constructs instead of one. It thus becomes problematic when trying to assess students' motivation.

Second, Astin's model was formulated theoretically rather than empirically. Without any empirical data, it is difficult to verify and/or refine her model. Since its formulation more than a decade ago, there has been rapid changes in the world economy and the world of work (e.g., Borgen, 1991; Hansen, 1993; London & Greller, 1991; Venne, 1996). It is very likely that individuals' work ethic and work behavior have also changed. It is thus not surprising that the four constructs are related in ways that are different from that in Astin's (1984) original formulation.

In sum, the findings of the present study were in part consistent with Astin's model. The four factors in her model contribute differently to the career development of different sub-groups of students. In particular, scores on the socialization sub-scale and the structure of opportunity sub-scale differentiated female students from male students. Scores on the motivation sub-scale and the expectation sub-scale also differentiated students who had previous job experience, those who had selected an academic major, and those who had decided on an occupation, from those who had not. The socialization sub-scale further differentiated students whose language of origin was English from those whose language of origin was not English. However, data from the present study suggest that the four factors were related in ways quite different from that in Astin's (1984) model. The author suggested that inherent weakness in Astin's (1984) model and rapid changes in the world of work since its formulation may explain these discrepancies.

Limitations of the Study

One of the limitations of the present study was the homogeneity of the sample. The majority of the students in the present study (approximately 80%) were between the

ages of 17 and 20 and had just graduated from high school before they entered university. Approximately 81% of this group of students were born in Canada and spoke English as their first language. Though the questionnaire used in the present study was able to depict differences in the career development of different sub-groups of students, the homogeneity of the sample could limit generalization of the present findings to students who were less "traditional". In fact, researchers have documented the changing demographics of today's university students. For example, more women and minorities are pursuing higher education. Individuals who are older than 25 years of age are also more likely to further their education and training in university (Hoffman, 1990; Stage, 1991). Since these individuals enter university with diverse experiences and expectations, it is conceivable that their motivation and career paths are quite different from those of high school graduates who are from the mainstream culture. Thus more theory-driven studies with diverse ethnic and cultural groups are called for.

Furthermore, the grouping of students may also be problematic. An example is grouping students according to their language of origin. Since students' culture of origin was not obtained in the questionnaire, it was assumed that the two groups of students whose language of origin differed belonged to two different cultural groups. Canada is a multicultural society, it is likely that these students were multicultural and multilingual. Yet, in the analysis, students' responses were categorized into either of the two language groups, English and non-English. The findings may reflect an artifact of such categorization and may not have reflected the experiences of students who belonged to diverse cultural groups. Among the 42 students in the present sample whose language of

origin was not English, it was very much likely that their worldviews were quite different from each other because of their different socialization experiences. Their levels of acculturation to the mainstream culture were also likely to influence their expectations of themselves and how they perceive opportunities in the world of work. These within group differences would need to be addressed in future studies.

It was a particularly challenging task for the author to base her study on a model which has not been empirically tested. One of the major criticisms of Astin's (1984) model is the lack of both operational definitions of the proposed constructs and specific hypotheses (e.g., Betz & Fitzgerald, 1987; Brooks, 1990; Harmon, 1984), which makes empirical tests of the model difficult. This may partly explain why the model has remained relatively unscrutinized. Since there is no known published instrument developed based on Astin's (1984) model, the survey instrument was constructed by the author based on her understanding of Astin's four constructs. The definitions of the four constructs as presented in chapter three may be somewhat different from that originally proposed in Astin's model. With no empirical data with which to compare findings of the present study, there is no way to determine how empirically valid the model and the instrument are.

The construct validity and reliability of the survey instrument used in the present study are also subject to scrutiny. During the instrument development process, five experts who were familiar with Astin's work were asked to rate the items independently regarding which of the four constructs they represented. Due to limitations of time, the items were rated twice with 20 items receiving consensus votes among all five raters in

the second-round rating. The other 20 items received majority votes among raters (either three or four votes out of five). In the final version of the instrument, five items were assigned to constructs inconsistent with that agreed by raters. This was done to ensure equal number of items in each sub-scale. Though these items were revised to make them more in line with Astin's definition, construct assignment of these items could have influenced the outcomes of the data analysis. More rigorous instrument development is needed to establish validity and reliability of the instrument.

With rapid changes in the world economy and the world of work (e.g., Borgen, 1991; Hansen, 1993; London & Greller, 1991; Venne, 1996), individuals' work ethic and work behavior could be very much different from that of individuals more than a decade ago when the model was formulated. Factor analysis of data collected from a larger and more diverse sample could help determine what other variables are at work in the career development of individuals today.

Last but not least, another limitation of the present study is the use of self-report survey. Students who returned the questionnaire may constitute a self-select group. They may be more psychologically- minded, more mindful of their career development, more likely to self-disclose, or more prone to conformity than students who did not return the questionnaire. After a discussion of the limitations of the present study, it is evident that more rigorous testing of the model and the instrument is called for.

Future Research Directions

In the present study, a quantitative approach was used to assess how Astin's four constructs operate in a selected sample of first-year university students. Changing

demographics and global trends have made career development an increasingly dynamic and complex process. Numbers alone may not be enough to represent students' unique experiences. As mentioned earlier, possible within group differences were not addressed in the present study. Qualitative research could be conducted in the future to obtain valuable information such as significant life events and job-related experiences from students. Such information could assist researchers in identifying variables that are important in developing career development models. Longitudinal studies could also be conducted to understand better the dynamics involved in individuals' career development process.

The data of the present study to a large extent have supported Astin's (1984) model. Yet this was the first known attempt to empirically verify her model. Though the four variables in her model have been shown to be relevant in the career development process, researchers have suggested other variables which could be incorporated into her model. Some examples are knowledge of the world of work (Nevill, 1984), health (Farmer, 1984; Hansen, 1984), role priorities (Farmer, 1984), and intimacy needs (Kahn, 1984). In future research, factor analysis of data collected from a larger and more diverse sample could help determine what other variables are at work in the career development of individuals today. Path analysis could also be used to identify the interrelationships among the variables proposed in Astin's model.

Astin's (1984) model is valuable in that it attempts to address both psychological and sociological factors in the career development of men and women. It also has the potential to address the career development of ethnic minorities who are faced with

internal and external barriers (e.g., Coleman & Barker, 1992). In short, more rigorous model testing with larger samples and ethnically and culturally diverse groups could further refine and develop Astin's (1984) model.

Implications of the Study

The present study has several practical implications. The data suggest that awareness of opportunity structure in the job market and the world of work is important to female students when they choose academic majors and future occupations. Researchers have documented that despite increased participation of women in the labor force, their opportunity is still limited by restricted occupational choices, unequal pay, and discrimination (e.g., Brooks, 1990; Ihle et al., 1996; Murrell et al., 1991; U. S. Equal Opportunity Commission, 1991). Awareness of these additional obstacles and opportunity structure could empower women to cope with present and future challenges and demands. It is conceivable that career counseling will play an increasingly significant role in the career development of university students. Career counselors need to provide relevant career information to students so that they can make wise and informed career decisions.

Career counseling may also be useful to students who had not decided on an academic major and/or future occupation. The data indicated that these students were less aware of their capabilities, strengths, and needs, and were less motivated towards achieving their goals than students who had decided on an academic major and/or future occupation. These students should be encouraged to actively participate in their own career development process and to develop both internal and external resources in the process. With the use of inventories such as Holland's Vocational Preference Inventory

(VPI) (1985b) and the Self-Directed Search (SDS) (1985c), career counselors could help students to identify their personal characteristics and occupational interests. Activities conducive to students' self exploration and career development such as career workshops and seminars should be made part of the career counseling process.

Another practical implication of the present study is that it re-affirms the call for systematic career education. The data suggest that work expectation was the most operative factor in Astin's (1984) model for this group of university students. In other words, awareness of their own capabilities, strengths, and needs is the most crucial in their academic and career development process. Yet about one third of the students in the present study had not decided on an academic major, and about one third of the students had not decided on an occupation. The figure is reminiscent of researchers' claim that one of the most common concerns expressed by university students is the need for assistance with career planning and career choice (Conger et al., 1994; Erwin, 1996; Herr, 1992). As such, career education should focus on self-exploration, particularly in relation to specific occupations.

A major purpose of career education is to help students develop the necessary knowledge, skills, and attitudes in order to make wise educational and career choices (Balcombe, 1995). Researchers have proposed that career-related concepts and attitudes such as career planning and problem solving skills should be integrated into academic programs, both at the secondary level and the tertiary level (Herr, 1992; Hiebert, 1993; Jarvis, 1995; Perry, 1994; Sharpe, 1996; Watts, 1995). In order to achieve this aim, career counselors need to work closely with faculty members to establish better links between

academic programs and students' future career paths. For example, career counselors could be invited to teach career planning skills such as resume writing and interview techniques as part of students' curriculum. Graduates could also be invited to speak to students regarding career planning, and career prospects and current situations in particular fields. Such infusion or integration will be conducive to the creation of what Hiebert (1993) termed a "Career Development Culture" (p. 6). A more proactive approach is called for to facilitate the career development of university students.

Moreover, the data further indicate that students who had previous job-related experience were more motivated towards achieving their goals, and were more aware of their capabilities, strengths, and needs than students who had not. In other words, job-related experience is conducive to students' career development process. Students' career development will likely be enhanced by working in settings related to their fields of study. Thus, practicums and internships need to be made an integral part of academic programs. Through these experiences, students will become more aware of the strengths, interests, and realities in the job market. They also have the opportunity to apply knowledge learned in classes to "real-life" situations. Students should also be given opportunity to share their experiences in class through which information regarding different work settings and occupational fields can be obtained.

To summarize, a unique contribution of the present study is that the data shed light on the needs and concerns of this group of first-year university students in their career development process. There are several practical implications. It is conceivable that career counseling will play an increasingly significant role in the career development

of university students. The study also re-affirms the call for systematic career education. Practicums and internships need to be made an essential part of students' academic training since they bridge knowledge learned in classes and realities in the world of work.

To conclude, the findings of the present study suggest that the four constructs in Astin's (1984) model namely, motivation, work expectations, socialization, and structure of opportunity all play a role in the career development of this group of first-year university students. Though not without limitations, more rigorous testing of her model could help refine and develop it. Student retention has been identified as an emerging concern of institutions of higher education (Bishop, 1990). Early career intervention is necessary to identify and assist students who are at risk of dropping out of university. The changing demographics and global trends have made career development an increasingly challenging task to this group of young people. It is apparent that the tasks of career counselors and practitioners are also increasingly complex and demanding. More theory-driven research is called for (Betz, 1991) to guide practices. Proactive approaches such as career workshops and seminars, and faculty members as mentors and advisors could provide students with the necessary resources and support. Integration of career-related concepts and attitudes into academic programs could also promote students' self-awareness, career mindfulness, and problem-solving skills. In order to maximize the quality and proficiency of the delivery of educational programs and career services, a closer collaboration among university administrators, faculty members, and student affairs personnel, becomes all the more essential.

References

Adams, G. R. (1992). Introduction and overview. In G. R. Adams, T. P. Gullotta, & R. Montemayor (Eds.), Adolescent identity formation (pp. 1-8). Newbury Park, CA: Page.

Alexitch, L., & Page, S. (1996). Problems in higher education: Dilemma for Canadian students in the nineties. Guidance and Counselling, 11(2), 15-18.

Astin, H. S. (1984). The meaning of work in women's lives: A sociopsychological model of career choice and work behavior. The Counseling Psychologist, 12, 117-126.

Axelson, J. A. (1993). Work and career development. In J. A. Axelson, Counseling and development in a multicultural society (2nd ed., pp. 224-268). Pacific Grove, CA: Brooks/Cole.

Balcombe, B. (1995). The importance of career education in the 1990s. Guidance and Counselling, 10(2), 19-26.

Bandura, A. (1977). Social learning theory. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1978). The self system in reciprocal determinism. American Psychologist, 33, 344-358.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1989). Social cognitive theory. In R. Vasta (Ed.), Annals of child development (Vol. 6, pp. 1-60). Greenwich, CT: JAI.

Barrett, N. (1987). Women and the economy. In S. E. Rix (Ed.), The American woman: 1987-88. A report in depth (pp. 100-149). New York: Norton.

Barton, S. (1994). Chaos, self-organization, and psychology. American

Psychologist, 49, 5-14.

Baxter-Magolda, M. B. (1992). Cocurricular influences on college students' intellectual development. Journal of College Student Development, 33, 203-213.

Belenky, M. F., Clinchy, B. M., Goldberger, N. R., & Tarule, J. M. (1986). Women's way of knowing: The development of self, voice, and mind. New York: Basic Books.

Benjamin, L., & Walz, G. R. (1995). 9 for the '90s: Counselling tasks for tomorrow. Guidance and Counselling, 10(4), 12-24.

Betz, N. E. (1991). Twenty years of vocational research: Looking back and ahead. Journal of Vocational Behavior, 39, 305-310.

Betz, N. E. (1992). Career assessment: A review of critical issues. In S. D. Brown & R. W. Lent (Eds.), Handbook of counseling psychology (2nd ed., pp. 453-484). New York: John Wiley & Sons.

Betz, N. E., & Fitzgerald, L. F. (1987). The career psychology of women. Orlando, FL: Academic Press.

Beutell, N. J., & Brenner, O. C. (1986). Sex differences in work values. Journal of Vocational Behavior, 28, 29-41.

Bishop, J. B. (1990). The university counseling center: An agenda for the 1990s. Journal of Counseling and Development, 68, 408-413.

Blos, P. (1962). On adolescence. New York: Free Press.

Blos, P. (1979). The adolescent passage. New York: International University Press.

Blustein, D. L. (1989). The role of goal instability and career self-efficacy in the career exploration process. Journal of Vocational Behavior, 35, 194-203.

Blustein, D. L., & Noumair, D. A. (1996). Self and identity in career development: Implications for theory and practice. Journal of Counseling and Development, 74, 433-441.

Blustein, D. L., & Phillips, S. D. (1990). Relation between ego identity statuses and decision-making styles. Journal of Counseling Psychology, 37, 160-168.

Bond, M. H., & Cheung, T. S. (1983). College students' spontaneous self-concept: The effect of culture among respondents in Hong Kong, Japan, and the United States. Journal of Cross-Cultural Psychology, 14(2), 153-171.

Bordin, E. S. (1984). Psychodynamic model of career choice and satisfaction. In D. Brown & L. Brooks (Eds.), Career choice and development (pp. 94-136). San Francisco, CA: Jossey-Bass.

Borgen, F. H. (1991). Megatrends and milestones in vocational behavior: A 20-year counseling psychology retrospective. Journal of Vocational Behavior, 39, 263-290.

Bowman, S. L. (1993). Career intervention strategies for ethnic minorities. The Career Development Quarterly, 42, 14-25.

Brammer, L. M. (1992). Coping with life transitions. International Journal for the Advancement of Counseling, 15, 239-253.

Bridges, J. S. (1989). Sex differences in occupational values. Sex Roles, 20, 205-211.

Brooks, L. (1990). Recent developments in theory building. In D. Brown & L.

Brooks (Eds.), Career choice and development (2nd ed., pp. 364-394). San Francisco: Jossey- Bass.

Brooks, J. H., & DuBois, D. L. (1995). Individual and environmental predictors of adjustment during the first year of college. Journal of College Student Development, 36, 347-360.

Brown, D. (1990). Summary, comparison, and critique of the major theories. In D. Brown & L. Brooks (Eds.), Career choice and development (2nd ed., pp. 338-363). San Francisco: Jossey- Bass.

Brown, D., & Brooks, L. (1990). Introduction to career development: Origins, evolution, and current approaches. In D. Brown & L. Brooks (Eds.), Career choice and development (2nd ed., pp. 1-12). San Francisco: Jossey- Bass.

Chickering, A. W., & Reisser, L. (1993). Education and identity (2nd ed.). San Francisco: Jossey-Bass.

Chiu, L. H. (1990). Comparison of responses to Edwards Personal Preference Schedule by Chinese and American college students. Psychological Reports, 67(3, Pt. 2), 1296-1298.

Clancy, S. M., & Dollinger, S. J. (1993). Identity, self, and personality: I. Identity status and the five-factor model of personality. Journal of Research on Adolescence, 3, 227-245.

Coleman, J. C. (1980). The nature of adolescence. London: Methuen.

Coleman, V. D., & Barker, S. A. (1992). A model of career development for a multicultural work force. International Journal for the Advancement of Counseling, 15, 187-195.

Conger, D. S., Hiebert, B., & Hong-Farrell., E. (1994). Career and employment counselling in Canada. Ottawa, ON: Canadian Labor Force Development Board.

Cooley, C. H. (1964). Human nature and the social order. New York: Schribners.

Cottone, R. R. (1991). Counselor roles according to two counseling worldviews. Journal of Counseling and Development, 69, 398-401.

Crites, J. O. (1969). Vocational psychology. New York: McGraw-Hill.

Davenport, D. S., & Yurich, J. M. (1991). Multicultural gender issues. Journal of Counseling and Development, 70, 64-71.

Dingle, B., Hillmo, J., Kelly, W., & Roche, J. (1997). Fact book 1996-97 (Rep. No. 154). Alberta: University of Calgary, Office of Institutional Analysis.

Drew, D. E. (Ed.). (1978). New directions for education and work: Increasing student development options in college. (No. 4). San Francisco: Jossey-Bass.

Drum, D. (1980). Understanding student development. In W. H. Morrill, J. C. Hurst, & E. R. Oetting (Eds.), Dimensions of intervention for student development (pp. 14-38). New York: John Wiley & Sons.

Dunn, C. W., & Veltman, G. C. (1989). Addressing the restrictive career maturity patterns of minority youth: A program evaluation. Journal of Multicultural Counseling and Development, 17, 156-164.

Egan, G. (1994, January). Hard times contract. Management Today, 48-50.

Engels, D. W., Minor, C. W., Sampson, J. P., Jr., & Splete, H. H. (1995). Career counseling specialty: History, development, and prospect. Journal of Counseling and Development, 74, 134-138.

Erikson, E. H. (1950). Childhood and society. New York: Norton.

Erikson, E. H. (1959). Identity and the life cycle. Psychological Issues, 1, 18-164.

Erikson, E. H. (1968). Identity: Youth, and crisis. New York: Norton.

Erikson, E. H. (1980). Identity and the life cycle. New York: Norton.

Erwin, L. (1996). "Having it all" in the nineties: the work and family aspirations of women undergraduates. In B. Galaway & J. Hudson (Eds.), Youth in transition: Perspectives on research and policy (pp. 199-211). Toronto: Thompson Educational Publishing.

Farmer, H. S. (1984). A shiny fresh minted penny. The Counseling Psychologist, 12, 141-144.

Farmer, H. S. (1985). Model of career and achievement motivation for men and women. Journal of Counseling Psychology, 32, 353-390.

Felsten, G., & Wilcox, K. (1992). Influences of stress and situation-specific mastery beliefs and satisfaction with social support on well-being and academic performance. Psychological Reports, 70, 291-303.

Figler, H. (1992). Expressing career potential in uncertain times. Minneapolis, MN: Minnesota Career Development Association.

Fitzgerald, L. F., & Betz, N. (1983). Issues in the vocational psychology of women. In B. Walsh & S. Osipow (Eds.), Handbook of vocational psychology (Vol. 1, pp. 83-151). Hillsdale, NJ: Erlbaum.

Fitzgerald, L. F., & Crites, J. O. (1980). Toward a career psychology of women: What do we know? What do we need to know? Journal of Counseling Psychology, 27,

44-62.

Fitzgerald, L. F., & Rounds, J. B. (1989). Vocational behavior, 1988: A critical analysis. Journal of Vocational Behavior, 35, 105-163.

Fitzpatrick, J. L., & Silverman, T. (1989). Women's selection of careers in engineering: Do traditional-nontraditional differences still exist? Journal of Vocational Behavior, 34, 266-278.

Fouad, N. A., & Arbona, C. (1994). Careers in a cultural context. The Career Development Quarterly, 43, 96-112.

Gati, I., Osipow, S. H., & Givon, M. (1995). Gender differences in career decision making: The content and structure of preferences. Journal of Counseling Psychology, 42, 204-216.

Giddens, A. (1991). Modernity and self-identity: Self and society in the late modern age. Stanford, CA: Stanford University Press.

Gilbert, L. A. (1984). Comments on the meaning of work in women's lives. The Counseling Psychologist, 12, 129-130.

Gilligan, C. (1977). In a different voice: Women's conceptions of self and of morality. Harvard Educational Review, 47, 481-517.

Gilligan, C. (1982). In a different voice: Psychological theory and women's development. Cambridge, MA: Harvard University Press.

Good, G. E., Gilbert, L. A., & Scher, M. (1990). Gender aware therapy: A synthesis of feminist therapy and knowledge about gender. Journal of Counseling and Development, 68, 376-380.

Gottfredson, L. S. (1981). Circumscription and compromise: A developmental theory of career aspiration. Journal of Counseling Psychology, 28, 416-427.

Grasha, A. F., & Kirschenbaum, D. S. (1980). Psychology of adjustment and competence. Cambridge, MA: Winthrop.

Greene, A. L. (1990). Great expectations: Constructions of the life course during adolescence. Journal of Youth and Adolescence, 19, 289-306.

Greene, A. L., & Wheatley, S. M. (1992). "I've got a lot to do and I don't think I'll have the time": Gender differences in late adolescents' narratives of the future. Journal of Youth and Adolescence, 21(6), 667-686.

Griffith, A. R. (1980). A survey of career development in corporations. Personnel and Guidance Journal, 58, 537-543.

Grotevant, H. D. (1987). Toward a process model of identity formation. Journal of Adolescent Research, 2, 203-222.

Grotevant, H. D., & Cooper, C. R. (1985). Patterns of interaction in family relationships and the development of identity and role-taking skills in adolescence. Child Development, 56, 415-428.

Hackett, G., & Betz, N. (1981). A self-efficacy approach to the career development of women. Journal of Vocational Behavior, 18, 326-339.

Hackett, G., Lent, R. W., & Greenhaus, J. H. (1991). Advances in vocational theory and research: A 20-year retrospective. Journal of Vocational Behavior, 38, 3-38.

Hansen, J. I. C. (1984). Response to the meaning of work in women's lives. The Counseling Psychologist, 12, 147-149.

Hansen, S. L. (1993). Career development trends and issues in the United States. Journal of Career Development, 20(1), 7-24.

Harmon, L. W. (1984). What's new? A response to Astin. The Counseling Psychologist, 12, 127-128.

Harter, S. (1982). The perceived competence scale for children. Child Development, 53, 87-97.

Harter, S. (1986). The self-perception profile for adolescents. Unpublished manuscript, University of Denver.

Harter, S. (1988). Developmental processes in the construction of the self. In T. D. Yawkey & J. E. Johnson (Eds.), Integrative processes and socialization: Early to middle childhood (pp. 45-78). Hillsdale, NJ: Lawrence Erlbaum Associates.

Havighurst, R. J. (1972). Developmental tasks and education. New York: D. McKay.

Henderson, S., Hesketh, B., & Tuffin, K. (1988). A test of Gottfredson's theory of circumscription. Journal of Vocational Behavior, 32, 37-48.

Herr, E. L. (1992). Emerging trends in career counseling. International Journal for the Advancement of Counseling, 15, 255-288.

Herr, E. L., & Cramer, S. H. (1984). Career guidance and counseling through the life span: Systematic approaches (2nd ed.). Boston: Little, Brown.

Hiebert, B. (1993). Career education: A time for infusion. Guidance and Counselling, 8(3), 5-10.

Hiebert, B., & Thomlison, B. (1996). Facilitating transitions to adulthood:

Research and policy implications. In B. Galaway & J. Hudson (Eds.), Youth in transition: Perspectives on research and policy (pp. 54-60). Toronto: Thompson Educational Publishing.

Hoffman, F. L. (1990). Developmental issues, college students and the 1990s. Journal of College Student Psychotherapy, 4(2), 3-12.

Holland, J. (1966). The psychology of vocational choice: A theory of vocational personalities and work environments. Waltham, MA: Blaisdell.

Holland, J. (1985a). Making vocational choices: A theory of vocational personalities and work environments. Englewood Cliffs, NJ: Prentice-Hall.

Holland, J. L. (1985b). Manual for the Vocational Preference Inventory. Odessa, FL: Psychological Assessment Resources, Inc.

Holland, J. L. (1985c). Professional Manual Self-Directed Search. Odessa, FL: Psychological Assessment Resources, Inc.

Holt, P. A. (1989). Differential effects of status and interest in the process of compromise. Journal of Counseling Psychology, 36, 42-47.

Hotchkiss, L., & Borow, H. (1990). Sociological perspectives on work and career development. In D. Brown & L. Brooks (Eds.), Career choice and development (2nd ed., pp. 262-307). San Francisco: Jossey- Bass.

Ihle, G. M., Sodowsky, G. R., & Kwan, K. L. (1996). Worldviews of women: Comparisons between white American clients, white American counselors, and Chinese international students. Journal of Counseling and Development, 74, 300-306.

Inhelder, B., & Piaget, J. (1958). The growth of logical thinking from childhood to

adolescence. New York: Basic Books.

Jarvis, P. S. (1995). Career planning: Developing the nation's primary resource. Guidance and Counselling, 10(4), 38-41.

Jones, A. J., Stefflre, B., & Stewart, N. R. (1970). Principles of guidance (6th ed.). New York: McGraw-Hill.

Jordan, J. V., Kaplan, A. G., Miller, J. B., Stiver, I. P., & Surrey, J. L. Introduction. In J. V. Jordan, A. G. Kaplan, J. B. Miller, I. P. Stiver, & J. L. Surrey (Eds.), Women's growth in connection: Writings from the Stone Center (pp. 1-7). New York: The Guilford Press.

Kahn, S. E. (1984). Astin's model of career development: The working of lives of women and men. The Counseling Psychologist, 12, 145-146.

Kelly, J. R. (1982). The centrality of leisure. National Forum, 62, 19-21.

Kennett, D. J. (1996). Understanding the pathway to employment: The importance of going beyond the basics in the career counseling of youth. In B. Galaway & J. Hudson (Eds.), Youth in transition: Perspectives on research and policy (pp. 212-219). Toronto: Thompson Educational Publishing.

Kenny, M. E., & Donaldson, G. A. (1991). Contributions of parental attachment and family structure to the social and psychological functioning of first-year college students. Journal of Counseling Psychology, 38, 479-486.

Kenny, M. E., & Donaldson, G. A. (1992). The relationship of parental attachment and psychological separation to the adjustment of first-year college women. Journal of College Student Development, 33, 431-438.

Klein, K. L., & Wiener, Y. (1977). Interest congruency as a moderator of the relationship between job tenure and job satisfaction and mental health. Journal of Vocational Behavior, 10, 91-98.

Knefelkamp, L., Widick, C., & Parker, C. (Eds.). (1978). Applying new developmental findings. New directions for student services. (No. 4). San Francisco: Jossey-Bass.

Komarovsky, M. (1985). Women in college: Shaping new feminine identities. New York: Basic Books.

Krumboltz, J. D. (1979). A social learning theory of career decision making. In A. M. Mitchell, G. B. Jones, & J. D. Krumboltz (Eds.), Social learning and career decision making. Cranston, RI: Carroll Press.

Lapsley, D. K., Rice, K. G., & FitzGerald, D. P. (1990). Adolescent attachment, identity, and adjustment to college: Implications for the continuity of adaptation hypothesis. Journal of Counseling and Development, 68, 561-565.

Larson, J. H., Butler, M., Wilson, S., Medora, N., & Allgood, S. (1994). The effects of gender on career problems in young adults. Journal of Counseling and Development, 73, 79-84.

LaVoie, J. C. (1990, April). Adolescent individuation. Paper presented at the Society for Research on Adolescents, Atlanta, GA.

Lent, R. W., & Hackett, G. (1987). Career self-efficacy: Empirical status and future directions. Journal of Vocational Behavior, 30, 347-382.

Leong, F. T. L. (1993). The career counseling process with racial-ethnic

minorities: The case of Asian Americans. The Career Development Quarterly, 42, 26-49.

Leso, J. F., & Neimeyer, G. J. (1991). Role of gender and construct type in vocational complexity and choice of academic major. Journal of Counseling Psychology, 38, 182-188.

Leung, S. A., Ivey, D., & Suzuki, L. (1994). Factors affecting the career aspirations of Asian Americans. Journal of Counseling and Development, 72, 404-410.

Leung, S. A., & Plake, B. S. (1990). A choice dilemma approach for examining the relative importance of sex type and prestige preferences in the process of career choice compromise. Journal of Counseling Psychology, 37, 399-406.

London, M., & Greller, M. M. (1991). Demographic trends and vocational behavior: A twenty year retrospective and agenda for the 1990s. Journal of Vocational Behavior, 38, 125-164.

Long, B. E., Sowa, C. J., & Niles, S. G. (1995). Differences in student development reflected by the career decisions of college seniors. Journal of College Student Development, 36, 47-52.

Looker, E. D., & Lowe, G. (1996). Preparation for the world of work: Research and policy implications. In B. Galaway & J. Hudson (Eds.), Youth in transition: Perspectives on research and policy (pp. 136-143). Toronto: Thompson Educational Publishing.

Lucas, M. S. (1993). Personal, social, academic, and career problems expressed by minority college students. Journal of Multicultural Counseling and Development, 21, 2-13.

Lunneborg, P. (1982). Role model influencers of nontraditional professional women. Journal of Vocational Behavior, 20, 276-281.

Luzzo, D. A. (1993). Value of career-decision-making self-efficacy in predicting career-decision-making attitudes and skills. Journal of Counseling Psychology, 40, 194-199.

Machung, A. (1989). Talking career, thinking jobs: Gender differences in career and family expectations of Berkeley seniors. Feminist Studies, 15, 35-58.

Maines, D. R., & Hardesty, M. J. (1987). Temporality and gender: Young adults' career and family plans. Social Forces, 66, 102-120.

Marcia, J. E. (1966). Development and validation of ego-identity status. Journal of Personality and Social Psychology, 3, 551-558.

Marcia, J. E. (1980). Identity in adolescence. In J. Adelson (Ed.), Handbook of adolescent psychology (pp. 159-187). New York: Wiley.

Markstrom-Adams, C. (1992). A consideration of intervening factors in adolescent identity formation. In G. R. Adams, T. P. Gullotta, & R. Montemayor (Eds.), Adolescent identity formation (pp. 173-192). Newbury Park, CA: Page.

Marshall, J. (1983). Reducing the effects of work oriented values on the lives of male American workers. Vocational Guidance Quarterly, 32, 109-115.

McAdoo, A. (1989, March). Women and work: Climbing the crystal stairs. Paper presented at the Radcliffe Conference on Women in the 21st Century, Cambridge, MA.

McBride, M. C. (1990). Autonomy and the struggle for female identity: Implications for counseling women. Journal of Counseling and Development, 69, 22-26.

McDaniels, C. (1984). The role of leisure in career development. Journal of Career Development, 11(2), 64-71.

McDaniels, C. (1989). The changing workplace: Career counseling strategies for the 1990s and beyond. San Francisco: Jossey-Bass.

McDaniels, C., & Gysbers, N. C. (1992). Counseling for career development: Theories, resources, and practice. San Francisco: Jossey-Bass.

McIntire, R. W., & Smith, S. (1993). Work and life styles among dropouts and ongoing college students. Unpublished manuscript, University of Maryland at College Park.

Mellor, S. (1989). Gender differences in identity formation as a function of self-other relationships. Journal of Youth and Adolescence, 18, 361-375.

Miller, C. H. (1974). Career development theory in perspective. In E. H. Herr (Ed.), Vocational guidance and human development (pp. 235-262). Boston: Houghton Mifflin.

Miller, J. B. (1976). Toward a new psychology of women. Boston: Beacon Press.

Morrison, A. M., White, R. P., Velsor, E. V., & The Center for Creative Leadership. (1987). Breaking the glass ceiling: Can women reach the top of America's largest corporations? New York: Addison-Wesley.

Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A metaanalytic investigation. Journal of Counseling Psychology, 38, 30-38.

Murrell, A. J., Frieze, I. H., & Frost, J. L. (1991). Aspiring to careers in male- and

female-dominated professions: A study of black and white college women. Psychology of Women Quarterly, 15, 103-126.

National Science Foundation (1994). Request for proposals. Washington, DC: U. S. Government Printing Office.

Neemann, J., & Harter, S. (1986). Self-Perception Profile for College Students. University of Denver.

Nevill, D. D. (1984). The meaning of work in women's lives: Role conflict, preparation, and change. The Counseling Psychologist, 12, 131-133.

Nickerson, E. T., & Kremgold-Barrett, A. (1990). Gender-fair psychotherapy in the United States: A possible dream? International Journal for the Advancement of Counseling, 13, 39-48.

Northcutt, C. A. (1991). Successful career women: Their professional and personal characteristics. New York: Greenwood Press.

Okocha, A. A. G. (1994). Preparing racial ethnic minorities for the work force 2000. Journal of Multicultural Counseling and Development, 22, 106-114.

Ornstein, S., Cron, W. L., & Slocum, J. W., Jr. (1989). Life stage versus career stage: A comparative test of the theories of Levinson and Super. Journal of Organizational Behavior, 10, 117-133.

Osipow, S. H. (1973). Theories of career development (2nd ed.). Englewood Cliffs, N. J.: Prentice-Hall.

Osipow, S. H. (1983). Theories of career development (3rd ed.). Englewood Cliffs, NJ: Prentice-Hall.

Parsons, F. (1909). Choosing a vocation. Boston: Houghton Mifflin.

Peavy, R. V. (1993). Envisioning the future: Worklife and counseling. Canadian Journal of Counselling, 27, 123-139.

Perry, N. S. (1994). School-to-work transitions: Opportunities for counselors. Counseling and Human Development, 27(4), 1-12.

Perry, W. (1970). Forms of intellectual and ethical development in the college years: A scheme. New York: Holt, Rinehart & Winston.

Perry, W. (1981). Cognitive and ethical growth: The making of meaning. In A. Chickering (Ed.), The modern American college: Responding to the new realities of diverse students and a changing society (pp. 76-116). San Francisco: Jossey-Bass Publishers.

Perun, P. J., & Bielby, D. D. V. (1981). Towards a model of female occupational behavior: A human development approach. Psychology of Women Quarterly, 6, 234-252.

Phillips, S. D., & Blustein, D. L. (1994). Readiness for career choices: Planning, exploring, and deciding. The Career Development Quarterly, 43, 63-73.

Phillips, S. D., Cairo, P. C., Blustein, D. L., Myers, R. A. (1988). Career development and vocational behavior, 1987: A review. Journal of Vocational Behavior, 33, 119-184.

Phinney, J., & Nakayama, S. (1991, April). Parental influence on ethnic identity formation in minority adolescents. Paper presented at the biennial meeting of the Society for Research on Child Development, Seattle, WA.

Phinney, J. S., & Rosenthal, D. A. (1992). Ethnic identity in adolescence: Process,

context, and outcome. In G. R. Adams, T. P. Gullotta, & R. Montemayor (Eds.), Adolescent identity formation (pp. 145-172). Newbury Park, CA: Page.

Poole, M. E., Langan-Fox, J., Ciavarella, M., & Omodei, M. (1991). A contextualist model of professional attainment: Results of a longitudinal study of career paths of men and women. The Counseling Psychologist, 19, 603-624.

Posterski & Bibby (1988). Canada's youth "Ready for today": A comprehensive survey of 15-24 year olds. Ottawa: Minister of State for Youth.

Pryor, R. G. L. (1985). Toward exploring the self-concept from psychology: Some comments on Gottfredson's circumscription/compromise theory. Journal of Counseling Psychology, 32, 154-158.

Rice, K. G. (1992). Separation-individuation and adjustment to college: A longitudinal study. Journal of Counseling Psychology, 39, 203-213.

Riger, S. (1992). Epistemological debates, feminist voices: Science, social values, and the study of women. American Psychologist, 47, 730-740.

Roe, A. (1956). The psychology of occupations. New York: Wiley.

Rosenbaum, J. N., Carty, L., & Burns, R. (1994). Experiences of adolescents participating in a developmental peer group counseling career programme. Guidance and Counselling, 9(5), 3-7.

Schaie, K. W. (1982). Toward a stage theory of adult cognitive development. In K. W. Schaie & J. Geiwitz (Eds.), Readings in adult development and aging. Boston: Little, Brown.

Schlossberg, N. (1984). Counseling adults in transition. New York: Springer.

Schultheiss, D. P., & Blustein, D. L. (1994). Contributions of family relationship factors to the identity formation process. Journal of Counseling and Development, 73, 159-166.

Schunk, D. H. (1991). Self-efficacy and academic motivation. Educational Psychologist, 26, 207-231.

Scott, J., & Hatalla, J. (1990). The influence of chance and contingency factors on career patterns of college-educated women. Career Development Quarterly, 39, 18-30.

Sharpe, D. B. (1996). Perceptions of work and education transition problems encountered after high school. In B. Galaway & J. Hudson (Eds.), Youth in transition: Perspectives on research and policy (pp. 178-188). Toronto: Thompson Educational Publishing.

Shaughnessy, J. J., & Zechmeister, E. B. (1994). Research methods in psychology (3rd ed.). New York: McGraw-Hill.

Skorikov, V., & Vondracek, F. W. (1993). Career development in the Commonwealth Independent States. The Career Development Quarterly, 41, 314-329.

Smith, E. J. (1983). Issues in racial minorities' career behavior. In W. B. Walsh & S. H. Osipow (Eds.), Handbook of vocational psychology. Vol. 1. Foundations (pp. 161-222). Hillsdale, NJ: Erlbaum.

Solberg, V. S., Good, G. E., Fischer, A. R., Brown, S. D., & Nord, D. (1995). Career decision-making and career search activities: Relative effects of career search self-efficacy and human agency. Journal of Counseling Psychology, 42, 448-455.

Soucie, R. (1990). Gender equity: Perceptions of today's adolescent women.

Ottawa, ON: Canadian Teachers' Federation.

Spade, J. Z., & Reese, C. A. (1991). We've come a long way, maybe: College students' plan for work and family. Sex Roles, 24(5/6), 309-321.

Stage, F. K. (1991). Common elements of theory: A framework for college student development. Journal of College Student Development, 32, 56-61.

Steenbarger, B. N. (1991). All the world is not a stage: Emerging contextualist themes in counseling and development. Journal of Counseling and Development, 70, 288-296.

Stickel, S. A. (1993). Chaos science: New metaphors for counseling. Journal of Humanistic Education and Development, 32, 61-68.

Stiver, I. P. (1991). Work inhibitions in women. In J. V. Jordan, A. G. Kaplan, J. B. Miller, I. P. Stiver, & J. L. Surrey (Eds.), Women's growth in connection: Writings from the Stone Center (pp. 223-236). New York: The Guilford Press.

Super, D. E. (1951). Vocational adjustment: Implementing a self-concept. Occupations, 30, 88-92.

Super, D. E. (1953). A theory of vocational development. American Psychologist, 8, 185-190.

Super, D. E. (1963). Self-concepts in vocational development. In D. E. Super (Ed.), Career development: Self-Concept theory (pp. 1-16). New York: College Entrance Examination Board.

Super, D. E. (1980). A life-span, life-space approach to career development. Journal of Vocational Behavior, 16, 282-298.

Super, D. E. (1990). A life-span, life-space approach to career development. In D. Brown, L. Brooks, & Associates (Eds.), Career choice and development (2nd ed., pp. 197-261). San Francisco: Jossey- Bass.

Taylor, K. M., & Betz, N. E. (1983). Applications of self-efficacy theory to the understanding and treatment of career indecision. Journal of Vocational Behavior, 22, 63-81.

Taylor, N. B., & Pryor, R. G. L. (1985). Exploring the process of compromise in career decision making. Journal of Vocational Behavior, 27, 171-190.

Tsang, W. K. (1993). Educational and early socioeconomic status attainment in Hong Kong. Hong Kong: The Chinese University of Hong Kong, Hong Kong Institute of Asia-Pacific Studies.

U. S. Equal Employment Opportunity Commission. (1991). 1990 report: Job patterns for minorities and women in private industry. Washington, DC: U. S. Government Printing Office.

Valsiner, J. (1989). Human development and culture. Massachusetts: Lexington Books.

Venne, R. A. (1996). Demographic and career issues relating to youth in transition to adulthood. In B. Galaway & J. Hudson (Eds.), Youth in transition: Perspectives on research and policy (pp. 46-52). Toronto: Thompson Educational Publishing.

Vondracek, F. W., Shimizu, K., Schulenberg, J., Hostetler, M., & Sakayanagi, T. (1990). A comparison between American and Japanese students' work values. Journal of Vocational Behavior, 36, 274-286.

Wang, T. H., & Creedon, C. F. (1989). Sex role orientations, attributions for achievement, and personal goals of Chinese youth. Sex Roles, 20(9-10), 473-486.

Waterman, A. S. (1992). Identity as an aspect of optimal psychological functioning. In G. R. Adams, T. P. Gullotta, & R. Montemayor (Eds.), Adolescent identity formation (pp. 50-72). Newbury Park, CA: Page.

Waters, E., & Sroufe, L. A. (1983). Social competence as a developmental construct. Developmental Review, 3, 79-97.

Watts, T. (1995). New models of learning, work and careers: An international perspective. Guidance and Counselling, 10(3), 3-9.

Weinrach, S. G., & Srebalus, D. J. (1990). Holland's theory of careers. In D. Brown & L. Brooks (Eds.), Career choice and development (2nd ed., pp. 37-67). San Francisco: Jossey-Bass.

White, K. (1980). Problems and characteristics of college students. Adolescence, 15, 23-41.

White, R. W. (1959). Motivation considered: The concept of competence. Psychological Review, 66, 297-333.

Women's Bureau of Labour Canada (1986). When I grow up... Career expectations and aspirations of Canadian school children. Ottawa, ON: Minister of Supply and Services Canada.

Yoder, J. D., & Kahn, A. S. (1993). Working toward an inclusive psychology of women. American Psychologist, 48, 846-850.

Zunker, V. G. (1986). Career counseling: Applied concepts of life planning (2nd

ed.). Monterey, CA: Brooks/Cole.

Appendix A

Response Frequencies of the 15 Demographic Variables

Demographics	Gender: Male	Gender: Female
Age		
Under 17	1	2
17-20	76	146
21-24	4	11
25-29	2	5
30 and over	0	4
Residency status		
Canadian citizen	74	157
Landed immigrant	3	6
Visa student	6	5
Length of residency		
Since birth	62	141
More than 15 years	2	4
11-15 years	4	8
5-10 years	5	5
Less than 5 years	5	5
Less than 1 year	3	5
Language of origin		
English	62	145
Non-English	20	22
*English proficiency		
Not at all proficient	0	0
Somewhat proficient	3	7
Proficient, may have problems sometimes	7	7
Proficient, seldom have problems	4	3
Very proficient	5	10
Academic standing		
90-100%	7	17
80-89%	39	70
70-79%	32	68
65-69%	3	12
64% or below	1	0

Appendix A (continued)

Demographics	Gender	
	Male	Female
Highest level of education		
High school graduate	76	134
Postsecondary school other than college/university	1	3
Some college/university	4	23
College/University degree	2	8
Some graduate school	0	0
Graduate degree	0	0
Job experience		
Yes	63	148
No	20	20
Program entering		
Undergraduate	83	168
Graduate	0	0
Faculty entering		
Education	0	5
Engineering	2	0
Fine arts	2	8
General studies	55	106
Humanities	3	2
Kinesiology	6	5
Law	0	0
Management	4	8
Medicine	3	1
Nursing	0	4
Social sciences	1	17
Physical education	0	0
Science	7	13
Social work	0	2
Major selection		
Yes	56	111
No	27	56

Appendix A (continued)

Demographics	Gender	
	Male	Female
Level of certainty (remain in proposed major)		
Probably will not remain	7	9
May not remain	5	12
Probably will remain	33	67
Definitely will remain	24	39
Not sure	9	22
Occupation decision		
Undecided	33	62
Decided, focused	27	56
Decided, not focused	2	7
Decided, general	19	43
Level of certainty (remain in proposed occupation)		
Probably will not remain	5	6
May not remain	4	6
Probably will remain	28	68
Definitely will remain	19	26
Not sure	15	35

*Note. This item is for students whose language of origin is not English.

Appendix B

First-Year University Student Survey

The First-Year University Student Survey aims at understanding the characteristics of beginning university students. This survey consists of two parts. For Part I, please supply us with some general information regarding yourself. For Part II, you are invited to respond to a number of statements which describe some of the expectations, beliefs, and experiences that are commonly shared by university students.

Part I: Background Information (Please check the appropriate boxes or fill in the blank)

1. Gender: □ M □ F
2. Age: □ under 17 □ 17-20 □ 21 -24 □ 25 -29 □ 30 and over
3. Residency status: □ Canadian citizen □ Landed immigrant □ Visa student
4. Length of residency/stay in Canada: □ Since birth □ More than 15 years □ 11-15 years □ 5-10 years □ Less than 5 years □ Less than 1 year
5. What is your language of origin? □ English □ Other
6. If English is **not** your language of origin, how would you describe your level of English proficiency?

   □ Not at all proficient
   □ Somewhat proficient
   □ Proficient, may have problems sometimes
   □ Proficient, seldom have problems
   □ Very proficient

7. What is the percentage equivalence of your academic standing when you enter the University of Calgary?

   □ 90% - 100% □ 80% - 89% □ 70% - 79% □ 69% - 65%
   □ 64% or below

8. What is your highest level of education before you enter the University of Calgary?

   □ High school graduate
   □ Postsecondary school other than college/university
   □ Some college/university
   □ College/university degree
   □ Some graduate school
   □ Graduate degree

9. Have you had any previous job-related experience? ◻ Yes ◻ No
If yes, please list the most current ones.

Nature of job	Paid/Volunteer	Period held (in months)
____________	____________	____________
____________	____________	____________
____________	____________	____________
____________	____________	____________
____________	____________	____________

10. Which program are you entering? ◻ Undergraduate ◻ Master ◻ Doctoral

11. Which faculty are you entering? ◻ Education ◻ Engineering ◻ Fine Arts
◻ General Studies ◻ Humanities ◻ Kinesiology ◻ Law
◻ Management ◻ Medicine ◻ Nursing ◻ Social Sciences
◻ Physical Education ◻ Science ◻ Social Work

12. Have you selected a major? ◻ Yes ◻ No

13. How certain are you that you will remain in this major field of study?

◻ I probably will not remain
◻ I may not remain
◻ I probably will remain
◻ I definitely will remain
◻ I am not sure

14. Which occupation do you intend to enter when you graduate from university?

____________________ (If undecided, please state undecided)

15. How certain are you that you will remain in this proposed occupation?

◻ I probably will not remain
◻ I may not remain
◻ I probably will remain
◻ I definitely will remain
◻ I am not sure

Part II: Personal Views and Experiences Please circle the appropriate number next to each statement that best describes your own experiences/beliefs. There are no right or wrong answers. Generally, your first response to the statement is the most accurate one.

Very dissimilar to my experience/ belief	Somewhat dissimilar to my experience/ belief	Neither dissimilar nor similar to my experience/belief	Somewhat similar to my experience/ belief	Very much similar to my experience/ belief
-2	-1	0	1	2

1.	I expect that my university education will further develop my potentials and interests.	-2	-1	0	1	2
2.	I believe that today's job market is very competitive.	-2	-1	0	1	2
3.	I expect my future job to be a major source of satisfaction.	-2	-1	0	1	2
4.	I believe it is important to use my skills and knowledge in my future career.	-2	-1	0	1	2
5.	My parents used to tell me when I was growing up that I could pursue any career and occupation I wanted to.	-2	-1	0	1	2
6.	I will consider both the potential for monetary reward and job satisfaction in choosing a career.	-2	-1	0	1	2
7.	I was brought up to believe that a woman should stay home and take care of her family.	-2	-1	0	1	2
8.	My volunteer experience had helped to shape my career interests.	-2	-1	0	1	2
9.	I believe that nowadays, women are given more opportunity to pursue their career choice.	-2	-1	0	1	2
10.	I expect to make rapid advancement in my future career.	-2	-1	0	1	2
11.	I had attended workshops to gather career-related information before I entered university.	-2	-1	0	1	2
12.	I have been told since I was a child that a woman's career is secondary to raising a family.	-2	-1	0	1	2
13.	I always work hard to achieve my goal.	-2	-1	0	1	2
14.	There will be a lot of career options open to me when I graduate from university.	-2	-1	0	1	2
15.	I have confidence that my talents, skills and enthusiasm will enable me to succeed in my future career.	-2	-1	0	1	2
16.	I believe that gender discrimination is still a problem in the job market.	-2	-1	0	1	2
17.	I have always been driven by the need to accomplish and to achieve.	-2	-1	0	1	2
18.	I remember my parent(s) once told me that I could be my own boss.	-2	-1	0	1	2
19.	I sought vocational/career counseling to clarify my own interests, aptitudes, and needs before entering university.	-2	-1	0	1	2
20.	I am motivated to seek out opportunities that can best utilize my potentials.	-2	-1	0	1	2

Very dissimilar to my experience/ belief	Somewhat dissimilar to my experience/ belief	Neither dissimilar nor similar to my experience/belief	Somewhat similar to my experience/ belief	Very much similar to my experience/ belief
-2	-1	0	1	2

21.	I expect to learn more about the job market and availability of jobs.	-2	-1	0	1	2
22.	I believe that in today's world of work, women receive the same salary and opportunities for advancement as men in comparable positions.	-2	-1	0	1	2
23.	I am aware of the kind of work that can best satisfy my needs.	-2	-1	0	1	2
24.	My family have always expected me to go to college and to develop my own career.	-2	-1	0	1	2
25.	One or both of my parents has/have high aspirations for me.	-2	-1	0	1	2
26.	Gender is going to be an issue in my future job search.	-2	-1	0	1	2
27.	I always get the message at home that women should stay home and raise children.	-2	-1	0	1	2
28.	I expect to be able to hold leadership positions in the future.	-2	-1	0	1	2
29.	I have always wanted to work toward improving the welfare and peace of the world.	-2	-1	0	1	2
30.	I believe that men and women today are given equal opportunity in the job market.	-2	-1	0	1	2
31.	One or both of my parents believe(s) that women should be independent.	-2	-1	0	1	2
32.	I am aware that some career options are closed to me because of my gender.	-2	-1	0	1	2
33.	I am always drawn to work which is challenging.	-2	-1	0	1	2
34.	I think that nowadays, more and more women are holding managerial positions in different organizations.	-2	-1	0	1	2
35.	I expect my future career can satisfy my needs.	-2	-1	0	1	2
36.	It is important to make good money in my future career.	-2	-1	0	1	2
37.	I always feel an inner drive to achieve and excel in whatever I do.	-2	-1	0	1	2
38.	I am most willing to participate in different forms of learning activities.	-2	-1	0	1	2
39.	I am aware that today's declining world economy makes it more difficult to find a job.	-2	-1	0	1	2
40.	I will seek to combine my interests and leisure activities in my future career.	-2	-1	0	1	2

Thank you very much for your kind assistance

Appendix C

Raters' Rating at Time 1 & Time 2

	A1	A2		B1	B2		C1	C2		D1	D2		E1	E2
1.	MO	EX		SO	NS		NS	EX		EX	EX		SO	EX
2.	SO	SO		SO	SO		EX	SO		EX	SO		EX	SO
3.	MO	EX		EX	MO		MO	EX		MO	EX		MO	MO
4.	MO	MO		EX	EX		EX	MO		EX	EX		EX	EX
5.	SOC	SOC		SOC	SOC		SOC	SOC		SOC	SOC		SOC	SOC
6.	MO	MO		EX	MO		MO	MO		MO	MO		MO	NS
7.	SOC	SOC		SOC	SOC		SOC	SOC		SOC	SOC		SOC	SOC
8.	SO	SOC		NS	SOC		SO	EX		SO	SOC		NS	EX
9.	SO	SO		SOC	SO		NS	SO		EX	SO		SOC	SO
10.	MO	EX		NS	MO		MO	EX		EX	EX		EX	MO
11.	SOC	EX		EX	NS		EX	EX		SO	SO		EX	NS
12.	SOC	SOC		SOC	SOC		SOC	SOC		SOC	SOC		SOC	SOC
13.	MO	MO		MO	MO		NS	EX		MO	EX		MO	EX
14.	EX	EX		SO	EX		EX	EX		EX	SO		EX	NS
15.	EX	EX		MO	EX		EX	EX		EX	EX		EX	EX
16.	SO	SO		SOC	SO		SO	SOC		EX	SOC		SOC	SO
17.	MO	MO		MO	MO		MO	MO		MO	MO		MO	MO
18.	SOC	SOC		SO	SOC		SOC	SOC		SOC	SOC		SOC	SOC
19.	MO	EX		EX	EX		EX	EX		SO	SOC		EX	EX
20.	MO	MO		EX	MO		EX	EX		SO	MO		NS	EX
21.	EX	EX		EX	SO		SO	SO		SO	SO		SO	SO
22.	SO	SO		SOC	SO		SO	SOC		EX	SOC		SOC	SO
23.	EX	MO		EX	EX		EX	EX		EX	EX		EX	EX
24.	SOC	EX		SOC	SOC		SOC	SOC		SOC	SOC		SOC	SOC
25.	SOC	SOC		SOC	SOC		SOC	SOC		SOC	SOC		SOC	SOC
26.	SO	SO		SOC	NS		SO	SO		EX	SO		SO	SO
27.	SOC	SOC		SOC	SOC		SOC	SOC		SOC	SOC		SOC	SOC
28.	EX	SO		SOC	SOC		SO	EX		EX	SOC		SO	SOC
29.	EX	MO		MO	MO		MO	MO		MO	MO		MO	MO
30.	SO	SO		SO	SO		SO	SO		EX	SO		SO	SO
31.	SOC	SOC		SOC	SOC		SOC	SOC		SOC	SOC		SOC	SOC
32.	SO	SO		SO	SO		SO	SO		SO	SO		SO	SO
33.	MO	MO		MO	MO		NS	MO		MO	MO		MO	MO
34.	SO	SO		SO	SO		SO	SO		EX	SO		SO	SO
35.	SO	EX		NS	EX		EX	EX		EX	EX		SO	EX
36.	EX	MO		MO	MO		MO	MO		MO	MO		MO	MO
37.	MO	MO		MO	MO		MO	MO		MO	MO		SOC	MO
38.	SO	SOC		SOC	SO		SO	SO		SO	SOC		SO	SO
39.	SO	SO		SO	SO		SO	SO		SO	SO		NS	SO
40.	EX	MO		MO	EX		MO	MO		EX	EX		SOC	MO

SOC = Socialization (items #5, 7, 8, 11, 12, 18, 24, 25, 27, 31)
MO = Motivation (#6, 13, 17, 20, 29, 33, 36, 37, 38, 40)
EX = Expectation (#1, 3, 4, 10, 15, 19, 21, 23, 28, 35)
SO = Structure of opportunity (items #2, 9, 14, 16, 22, 26, 30, 32, 34, 39)
NS = Not sure

Appendix C (continued)

Number of Raters in Each Category and Records of Modifications

	1st Round						2nd Round						Modifications	
	SOC	MO	EX	SO	NS		SOC	MO	EX	SO	NS		1st Round	2nd Round
1.		1	1	2	1				4		1		MWC	NC
2.			3	2						5			MWC	NC
3.		4	1					2	3				NC	NC
4.		1	4					2	3				NC	MWC
5.	5						5						NC	NC
6.		4	1					4			1		NC	NC
7.	5						5						NC	NC
8.				3	2		3		2				MWC	MWC
9.	2		1	1	1					5			MC	NC
10.		2	2		1			2	3				MWC	NC
11.	1		3	1					2	1	2		MWC	NC
12.	5						5						NC	NC
13.		4			1			2	3				NC	MWC
14.			4	1					3	1	1		DC	MWC
15.			4	1					5				NC	NC
16.	2		1	2			2			3			NC	NC
17.		5						5					NC	NC
18.	4			1			5						NC	NC
19.		1	3	1			1		4				NC	NC
20.		1	2	1	1			3	2				MWC	NC
21.			2	3					1	4			MWC	MWC
22.	2		1	2			2			3			NC	NC
23.			5					1	4				NC	NC
24.	5						4		1				NC	NC
25.	5						5						NC	NC
26.	1		1	3						4	1		MWC	MWC
27.	5						5						NC	NC
28.	1		2	2			3		1	1			MC	DC/MC
29.		4	1					5					NC	NC
30.			1	4						5			NC	NC
31.	5						5						NC	NC
32.				5						5			NC	NC
33.		4			1			5					NC	NC
34.			1	4						5			NC	NC
35.			2	2	1				5				MWC	NC
36.		4	1					5					NC	NC
37.	1	4						5					NC	NC
38.	1			4			2			3			MWC	DC/MC
39.				4	1					5			NC	NC
40.	1	2	2					3	2				MC	NC

MWC=Minor Word Change; NC=No Change; DC=Dimension Change; MC=Major Change
Kappa statistic K = 17.53(1st Round); K = 22.50 (2nd Round) 1-tailed .01 = 2.326   2-tailed .01 = 2.576

SOC = Socialization (items #5, 7, 8, 11, 12, 18, 24, 25, 27, 31)
MO = Motivation (#6, 13, 17, 20, 29, 33, 36, 37, 38, 40)
EX = Expectation (#1, 3, 4, 10, 15, 19, 21, 23, 28, 35)
SO = Structure of opportunity (items #2, 9, 14, 16, 22, 26, 30, 32, 34, 39)
NS = Not sure

Appendix C (continued)

Number of Items in Each Category by Raters

	1st Round						2nd Round				
	SOC	MO	EX	SO	NS		SOC	MO	EX	SO	NS
Rater A	9	11	8	12	----		9	11	10	10	----
Rater B	13	8	8	8	3		10	10	7	10	3
Rater C	8	8	9	11	4		10	8	13	9	----
Rater D	8	8	16	8	----		14	7	9	10	----
Rater E	13	7	8	9	3		9	8	9	11	3

Appendix D

Cover Letter

Dear Fellow Student,

My name is Mandy Hoi. I am a graduate student in the Department of Educational Psychology at the University of Calgary, conducting a research project under the supervision of Professor Bryan Hiebert, as part of the requirements towards a Ph.D. degree. The purpose of the study is to understand the factors influencing the choice of career/academic major of first-year university students.

As part of the study you will be asked to fill out a questionnaire and to participate in a focus discussion group. The first part of the questionnaire will ask questions about you, your age, gender, length of residency/stay in Canada, language of origin, English proficiency etc. The second part of the questionnaire consists of a rating scale and 40 statements which describe the expectations, beliefs, and experiences that some people have when they choose a(n) career/academic major. You would be asked to rate the statements according to how close they describe your expectations, beliefs, and experiences. It will take approximately 20 minutes to fill out the questionnaire. The focus discussion group will last approximately 30 minutes.

You should be aware that even if you give your permission you are free to withdraw at any time for any reason and without penalty. Participation in this study will involve no greater risks than those ordinarily experienced in daily life.

Please be aware that your responses in the questionnaire and at the focus group will only be used in the pilot study and the construction of the questionnaire. They will not be included in the analysis of the subsequent study nor will they be reported in any published reports. Please also note that you will not receive individual result.

If you have any questions, please feel free to contact me at 220-5651, my supervisor Professor Bryan Hiebert at 220-7770, the Office of the Chair, Faculty of Education Joint Ethics Committee at 220-5626, or the Office of the Vice-President (Research) at 220-3381. Two copies of the consent for research participation form are provided. Please return one signed copy to me and retain the other copy for your records.

Thank you very much for your cooperation.

Sincerely,

Appendix E

Consent for Research Participation

I, the undersigned, hereby give my consent to participate in a research project entitled "Career Development of First-Year University Students: A Test of Astin's Career Development Model".

I understand that such consent means that I will be asked to fill out a questionnaire which will take approximately 20 minutes. By signing this consent form, I have also agreed to participate in a focus group to provide any feedback/response that I may have regarding the questionnaire.

I understand that participation in this study may be terminated at any time by my request or at the request of the investigator. Participation in this project and/or withdrawal from this project will not adversely affect me in any way.

I understand that this study will not involve any greater risks than those ordinarily occurring in daily life.

I understand that my responses in the questionnaire and at the focus group will only be used in the pilot study and the construction of the questionnaire. They will not be included in the analysis of the subsequent study nor will they be reported in any published reports.

I have been given a copy of this consent form for my records. I understand that if I have any questions I can contact the investigator at 220-5651, the investigator's supervisor Professor Bryan Hiebert at 220-7770, the Office of the Chair, Faculty of Education Joint Ethics Committee at 220-5626, or the Office of the Vice-President (Research) at 220-3381.

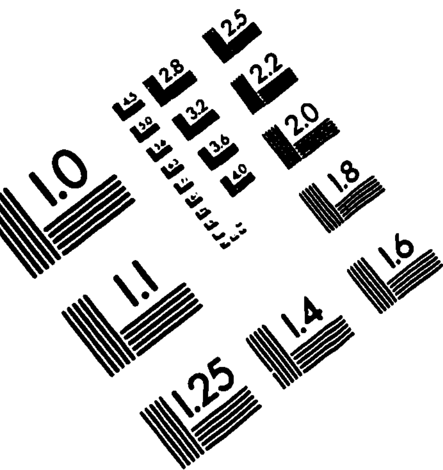
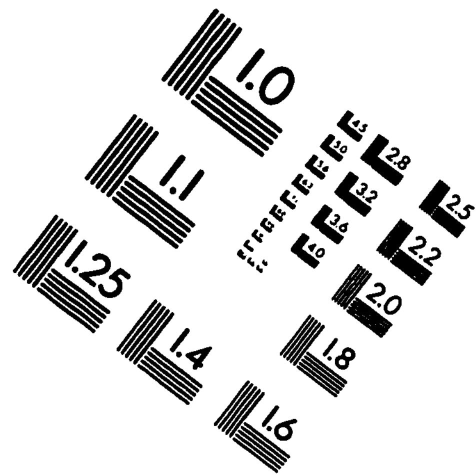
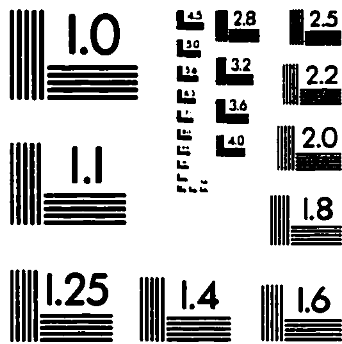
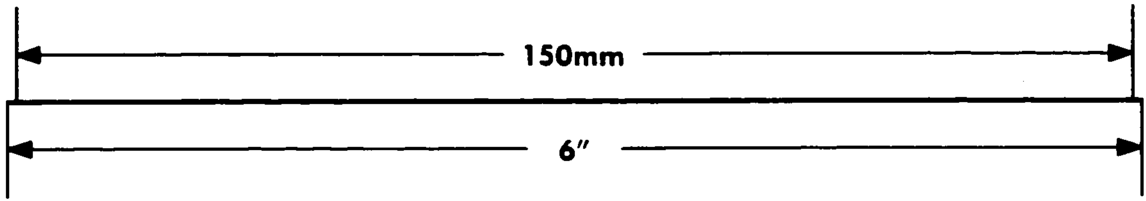
____________________ ____________________

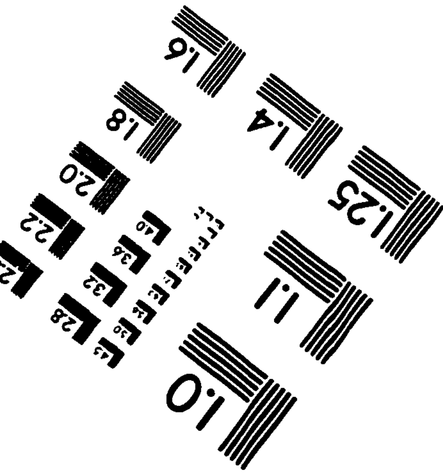
Date Signature

____

Participant's Printed Name

IMAGE EVALUATION
TEST TARGET (QA-3)



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