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

Mandy Man-Nor Hoi
Hong Kong Baptist University
Bryan Hiebert
University of Calgary

Abstract

This study examined how the four constructs in Astin's (1984) career development model operate in the choice of college major career goals with a selected sample of 253 first-year university students. 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 students whose language of origin is not English. The results are discussed in terms of the developmental and cultural issues these students were facing. Implications for future research and interventions are also discussed.

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

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). Since Parsons (1909) presented the first conceptual framework for understanding individuals' career decision process, a growing number of theories and models of career development and career choice have emerged. Career development theorists have speculated about the meaning of work in people's lives. For example, Super (1951, 1953, 1963) emphasized the development and implementation of self-concept in the career development process. Holland (1966, 1985) sought to match individual personality types and environmental characteristics. Others suggested that work allowed individuals to fulfill certain basic needs (e.g., Astin, 1984; Roe, 1956). An underlying theme in these theories is that the salience of work in people's lives is important.

Although these models have made substantial contributions to the understanding of career decision making and career development, most theories are based on the experiences of white, middle-class males. Moreover, most career development theories also assume that individuals are free to choose from among an array of alternatives which are available to all. Thus, researchers have begun to question the relevance of these theories to women and individuals from different cultural, ethnic, and/or socioeconomic backgrounds (e.g., Betz & Fitzgerald, 1987; Fitzgerald & Crites, 1980; Fouad & Arbona, 1994; Okocha, 1994; Perun & Bielby, 1981). As Okocha (1994) points out, many of the assumptions of career development theories ignore the social realities of special groups where career development may be constrained by such factors as prejudice, discrimination, and opportunity availability imposed by society's socio-political system (Griffith, 1980; Smith, 1983).

Theories Relating to the Career Development of Women

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. An extensive examination of each theory is beyond the scope of this paper. However, a brief overview of four selected theories/models is given to provide a context for the present study.

Hackett and Betz's Self-Efficacy Model

Hackett and Betz (1981) formulated a career development model based on Bandura's (1977) notion of self-efficacy, which attempted to explain some of the processes involved in men's and women's career pursuits and their beliefs about achievement. Hackett and Betz asserted that self-efficacy could explain the processes by which traditional gender role socialization influenced men's and women's self-referent evaluations in relation to career choices. They argued that women in general 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 paths and have fewer female role models who are successful. They believed that self-efficacy could explain why some women do not fully develop their capabilities and talents in their career pursuit.

Gottfredson's Circumscription Theory

Gottfredson (1981) developed a model which incorporated several elements from earlier theories, namely: self-concept, developmental stages, and match between individuals and occupation. Gottfredson (1981) expanded on Super's (1951, 1953, 1963) idea that individuals seek jobs that are compatible with their self-concept. She suggests that a multi-faceted self-concept, influenced by variables such as gender, social class, and intelligence, plays a significant role in predicting occupational aspirations and career choices.

Gottfredson's (1981) model addresses women's career development in two different ways. First of all, it discusses the process of how individuals reach a compromise when they face conflicting goals. Gottfredson (1981) postulates that when career choice com-

promises are necessary, individuals are more ready to sacrifice their interests than to be in an occupation that is not "appropriate" for their gender, i.e., not compatible with a gender-stereotypic self-concept. The compromise process is particularly useful for understanding why women attempt to juggle priorities such as societal expectations, family obligations, and career aspirations. It also somewhat explains why women are concentrated in lower-pay and lower-status occupations despite their interests and aspirations. Second, Gottfredson 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, stereotypes, and lack of role models who have broken the mould (e.g., Betz & Fitzgerald, 1987; Brooks, 1990; US Equal Employment Opportunity Commission, 1991).

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 (background, environment, and personal) interact to influence the aspiration, mastery, and career commitment of men and women. Background variables such as age, gender, and ethnicity 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, including experiences at school and support from family and teachers. Personal variables such as academic self-esteem and achievement styles in turn set limit to the influences of environment and have been found to influence career and achievement motivation. It is Farmer's contention that changes in society's attitude towards women working may influence changes in men's and women's achievement in the future.

Astin's Sociopsychological Model

Astin's (1984) model attempted to incorporate sociological as well as psychological factors, emphasizing that both psychological factors and cultural-environmental factors interact to influence career choice and work behavior. Astin's model includes four inter-related factors: motivation, work expectations, socialization, and structure of opportunity. See Figure 1.

According to Astin, work is important because it is a means to fulfilling 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. For Astin, 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. They 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 reinforced for engaging in gender-appropriate behaviors. As children internalize social norms and values

Figure 1

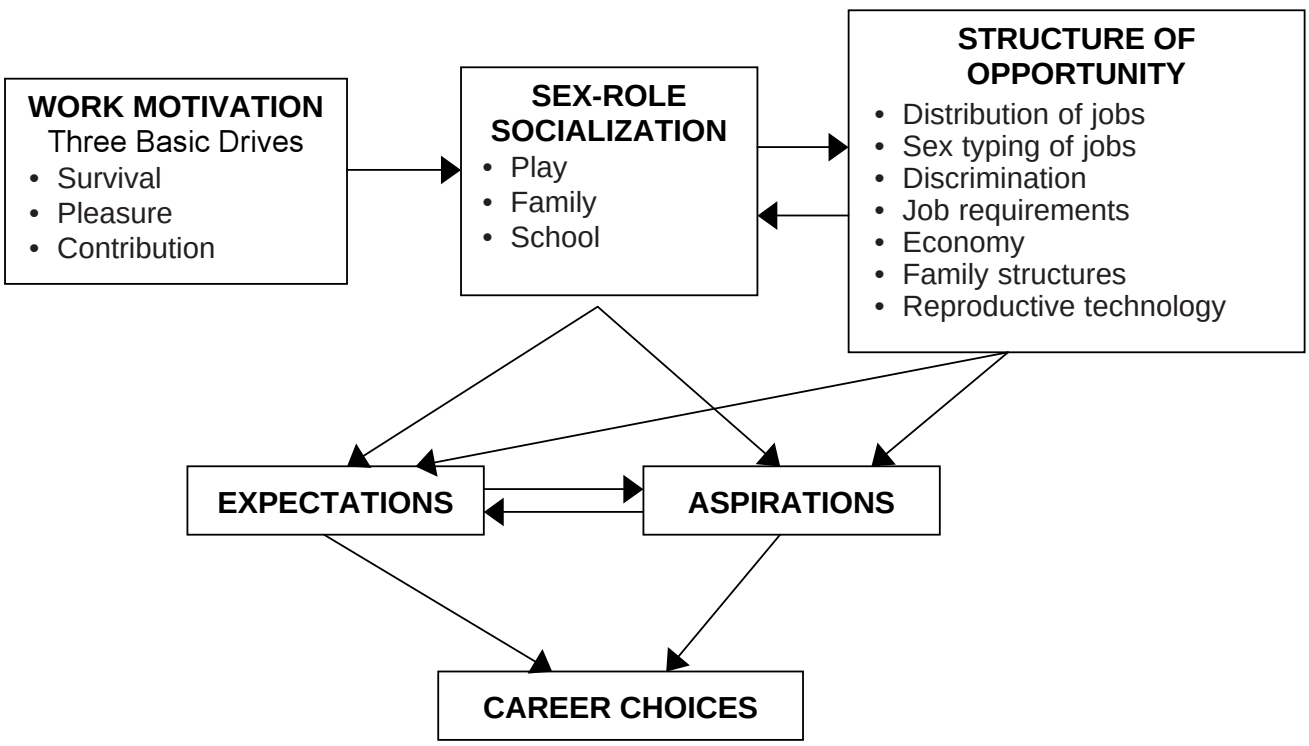

Figure 1. Helen Astin's Sociopsychological Model of Career Choice and Work Behavior

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 widespread options) or restricting (which promotes stereotyping).

The structure of opportunity construct in Astin's model was an important determining factor in the decision to use it as a theoretical framework in the present study. From Astin's perspective, opportunity structure is not static, but changes over time and across different segments of society. 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 (1984) model could be used to understand such career-related issues as life/career transition and career adjustment in people's lives. Implied in the conceptualization of the opportunity structure is the significance of individuals' perception and/or awareness of available options in the world of work. As such, opportunity structure could also help explain the differential career expectations and choices of men and women. Others have regarded Astin's (1984) model as having potential in both research and practice (Brooks, 1990; Gilbert, 1984). 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). 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.

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 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. 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.

The Current Study

Using Astin's model as a theoretical framework, the present study addressed some missing pieces in the career development literature. One purpose of the study was 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 was hypothesized that Astin's four constructs would all be important, but would operate differently for students whose socialization and life/work experiences were different.

Methodology

Sample. An invitation to participate in this study was given to 376 first-year students participating in a orientation program in a major university in Western Canada. Responses were collected from 264 students, providing a return rate of approximately 70%. Of these, 11 were either incomplete or spoiled, leaving 253 students for the data analysis. Student language of origin (English or non-English) was used to group students in the data analysis. Approximately 88 % of the participants were in the 17 to 20 year age range. (See Table 1.) About two-thirds of the sample were female. About 83% of the students were English-speaking and about 81% had resided in Canada since birth. Approximately 84% of the students had previous job experience, 67% had selected a major, and 62% had selected an occupational goal. These figures are roughly proportional to the entire population of first year students, as reported by the office of institutional analysis.

Data source. The survey instrument used in the study consisted of two parts. Part 1 collected demographic data from participants, including: gender, age, residency status, length of stay in Canada, language of origin, English proficiency, proposed major, and occupational goal. Part 2 consisted of 40 items, 10 items for each of the four constructs in Astin's model namely: motivation, work expectation, socialization, and structure of opportunity. Since there is no published instrument reflecting Astin's model, a survey instrument was developed, following the methods suggested by Shaughnessy and Zechmeister (1994). Initially, an extensive item pool was developed, based on descriptions of the constructs in the literature. Then, five experts who were familiar with Astin's work were asked to rate the items independently, indicating which of the four constructs each item represented. Cohen's Kappa was calculated to assess inter-rater agreement. It was used in preference to percentage agreement because it accounts for chance agreement amongst raters. Items where there was a low amount of inter-rater agreement were discarded or revised and the procedure repeated until suitable inter-rater agreement was obtained regarding the subscale to which each item belonged. For the final round of rating, significant Kappa indicates significant agreement amongst raters beyond chance, $\underline{p} \leq 0.01$.

Procedures. Data were collected during a break in an orientation program for new students. The first author introduced herself, gave a brief description of the study, explained the nature of participants' involvement, and distributed the research packages to students. The package contained: a copy of the questionnaire, a cover letter describing the purpose of the study and the nature of participant involvement, and a consent form. Students who agreed to participate in the study read the cover letter, signed the consent form, and proceeded to fill out the questionnaire, returning it to a collection box in the administration area or at the entrance of the Student Resource Center.

Results

The data were analyzed in several steps. Two-way MANOVAs were used to assess gender and language differences among students. Pearson product-

Table 1

Demographic Information on Sample of 253 University Undergraduates

Variable	Language of Origin				Total
	English		Non-English		
	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	61 (24.69)	145 (58.71)	19 (7.69)	22 (8.91)	
Total Language	206 (83.40)		41 (16.60)		247 (100)
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	62 (24.90)	145 (58.24)	20 (8.03)	22 (8.84)	
Total Job Experience	207 (83.13)		42 (16.87)		249 (100)
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	62 (25.00)	144 (58.06)	20 (8.06)	22 (8.88)	
Total Major Selection	206 (83.06)		42 (16.94)		248 (100)
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	61 (24.70)	145 (58.70)	19(7.69)	22(8.91)	
Total Occupation Selection	206 (83.40)		41 (16.60)		247 (100)
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 demographic information. The numbers in parentheses are percentages.

moment correlations were conducted to assess the relationships among the four factors in Astin's model: motivation, work expectations, sex-role socialization, and structure of opportunity.

Gender Differences

Five, 2 (gender) x 2 (demographic variable) MANOVAs were conducted to assess gender differences on the four factors in Astin's model. For each analysis, gender was crossed with one of the following demographic variables: students' language of origin, students' length of residency in Canada, whether students had previous job experience, whether students had selected a major, and whether students had decided on an occupational goal. Gender was not crossed with other demographic variables because of insufficient number of students in some cells. The results of the MANOVAs indicated a significant main effect for gender, $F(4, 242) = 2.71$, $p < .05$. See Table 2. More specifically, female students scored significantly higher than male students on the socialization sub-scale and structure of opportunity sub-scale across all five demographic variables. In other words, the socialization experiences of female students were more expanding and less gender stereotypic than was the case for male students. Females also were more aware of the economic conditions, job market realities, and opportunities available to women, than were male students.

Language Differences

Three, 2 (language of origin) x 2 (demographic variable) MANOVAs were conducted to assess differences on Astin's four factors between students whose language of origin was English and those whose language of origin was not English. In these analyses, language of origin was crossed with: length of residency in Canada, whether students had previous job experience, and whether students had decided on an occupational goal. Language of origin was not crossed with other demographic variables because of insufficient

Table 2

Means and Standard Deviations Depicting Gender Differences on Astin's Four Factors

Demographic Variable	Structure of opportunity	Motivation	Expectation	Socialization
Language of origin				
Male (n=82)	5.99* (3.94)	12.15 (4.32)	11.50 (4.65)	8.84** (5.02)
Female (n=167)	6.80* (2.94)	12.77 (4.03)	12.17 (3.79)	10.75** (4.58)
Length of residency				
Male (n=81)	5.89* (3.91)	12.10 (4.32)	11.43 (4.64)	8.77** (5.02)
Female (n=168)	6.79* (2.93)	12.76 (4.02)	12.17 (3.78)	10.73** (4.58)
Job experience				
Male (n=83)	5.96* (3.92)	12.17 (4.30)	11.51 (4.62)	8.84** (4.99)
Female (n=168)	6.79* (2.93)	12.76 (4.02)	12.17 (3.78)	10.73** (4.58)
Major selection				
Male (n=83)	5.96* (3.92)	12.17 (4.30)	11.51 (4.62)	8.84** (4.99)
Female (n=167)	6.77* (2.94)	12.75 (4.03)	12.14 (3.76)	10.71** (4.59)
Occupation decision				
Male (n=81)	6.14* (3.81)	12.40 (4.02)	11.84 (4.10)	9.06** (4.75)
Female (168)	6.79* (2.93)	12.76 (4.02)	12.17 (3.78)	10.73** (4.58)

Note. The numbers in parenthesis are standard deviations.

* indicates $p < .05$, ** indicates $p < .01$.

number of students in some cells. The results of the MANOVAs indicated a significant main effect for language of origin, $F(4,242) = 4.72$, $p < .01$. See Table 3. More specifically, students whose language of origin was English scored significantly higher than students whose language of origin was not English on the socialization sub-scale across the three demographic variables. In other words, the socialization experiences of students whose language of origin was English was more expanding than that of students whose language of origin was not English.

Pearson product-moment correlations were calculated to assess the relationships between Astin's four factors for the entire sample and for four subgroups of students: male students, female students, students whose language of origin was English, and students whose language of origin was not English. The data show that for the entire sample, all factors were significantly correlated, except for the non-significant relationship between socialization and structure of opportunity. The correlations for males, females, and students whose language of origin was English, demonstrated a similar pattern. However, for students whose language of origin was not English, the pattern was markedly different. Expectation was significantly correlated with the other three factors, but the other three factors were relatively independent of each other. See Table 4. This suggests that for students whose first language is not English, motivation, socialization, and structure of opportunity are relatively independent of each other, while each of these factors is related closely to the student's expectations of the world of work.

Supplementary Analyses

In order to explore other possible explanations for the above findings, several MANOVAs were conducted using the remaining demographic factors as classification variables. Crosstabs also were calculated to determine whether the key variables reported above might be disproportionately represented in other demographic factors. The results that reached significance ($p \leq .05$) are reported below. The MANOVAs revealed that students who had previous job experience had higher mean scores on the motivation sub-scale and the expectation sub-scale than students with no previous job experience. This suggests that students with job experience were more motivated towards achieving their goals and were more aware of their own capabilities, strengths, and needs. Similar results were obtained for students who had selected an academic major and those who had decided on an occupational goal. We also found that female students tended to have more previous career-related experience than did male students. Many females had volunteer experience which helped shape their career interests while others had attended workshops to gather career-related information before they entered university. Females in our study also were more likely to have received support from parents and/or significant others to pursue higher education and to develop their own careers.

Discussion

Table 3

Means and Standard Deviations Depicting Language Differences on Astin's Four Factors

Demographic Variable	Structure of opportunity	Motivation	Expectation	Socialization
Length of residency				
English (n=207)	6.52 (3.19)	12.59 (4.11)	11.99 (4.08)	10.73** (4.60)
Non-English (n=42)	6.52 (3.94)	12.31 (4.26)	11.57 (4.21)	6.90** (5.26)
Job experience				
English (n=208)	6.54 (3.21)	12.59 (4.10)	12.00 (4.07)	10.74** (4.59)
Non-English (n=43)	6.51 (3.90)	12.42 (4.27)	11.67 (4.22)	7.02** (5.26)
Occupation decision				
English (n=207)	6.58 (3.17)	12.61 (4.10)	12.08 (3.89)	10.82** (4.45)
Non-English (n=42)	6.69 (3.76)	12.76 (3.67)	11.90 (3.99)	7.05** (5.32)

Note: The numbers in parentheses are standard deviations.

* indicates $p < .05$, ** indicates $p < .01$.

Table 4

Correlations Between the Four Dependent Measures for the Entire Sample and Four Sub-Groups of Students

Variable	Structure of opportunity	Expectation	Socialization
Motivation			
Entire sample (n=253)	*.51***	*.27***	*.34***
Male (n=83)	.58**	.34**	.37**
Female (n=168)	.48**	.24**	.23**
English (n=208)	.50**	.28**	.28**
Non-English (n=42)	.56**	.27	.20
Expectation			
Entire sample	--	.38**	.37**
Male	--	.49**	.54**
Female	--	.29**	.26**
English	--	.39**	.35**
Non-English	--	.41**	.48**
Socialization			
Entire sample	--	--	.11
Male	--	--	.25**
Female	--	--	.22**
English	--	--	.30**
Non-English	--	--	.09

Note. * indicates $p < .05$, ** indicates $p < .01$.

In general, the findings of the present study suggest that motivation, work expectations, socialization, and structure of opportunity all play an important role in the career development of this group of first-year university students, but they operate differently for males and females and for people whose language of origin is not English. The socialization experiences of female students in our study were more expanding than that of male students. Females also were more aware that women are playing a more significant role in the job market and that gender discrimination may still be present in the world of work. This is consistent with other reports indicating 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, Sodowsky, & Kwan, 1996; Murrell, Frieze, & Frost, 1991; U. S. Equal Employment 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.

It is important to acknowledge that some of the findings in our supplementary analyses suggest that gender alone may not be the pivotal factor in creating these differences. Students who had previous job experience were aware of their own interests, strengths, and needs and were more likely to have selected an occupational goal. Females also were more likely to have previous job experiences and have engaged in career exploration activities. These career-related experiences are likely a part of the career socialization process which helps refine career interests and goals. Thus, it is not clear at present whether gender per se is responsible for these differences or whether other mediating factors might be operating. Regardless

though, these findings confirm the role motivation and expectation play in student career decisions as suggested in Astin's (1984) model.

The findings in this study reveal some interesting observations about language and culture. The differences in the language of origin variable on the socialization subscale provide support for previous reports suggesting that individuals from different cultures are socialized in different ways (e.g., Harter, 1988; Valsiner, 1989). The lower scores on the socialization subscale for students whose language of origin was not English may suggest that these students 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, nurturing, 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 the motivation, socialization, expectation, and structure of opportunity, our data show mixed support for Astin's model. For the sample as a whole, as well as for males, females, and students whose language of origin was English the four factors are interrelated. However, for students whose language of origin was not English, expectation was significantly related to the other three factors, but the other three factors are independent of each other. This suggests that work expectation is the most operative factor for this group of students. However, in Astin's (1984) model there is 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. Our data may suggest an adaptation of Astin's original contention to give more prominence to expectation than was previously given. For the group of students in our study, 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. This suggests that students who were more aware of their interests, strengths, and goals were more motivated to achieve their goals, and vice versa.

One caution should be exercised when interpreting our data. One of the limitations of the present study was the homogeneity of the sample. Approximately 80% of the students in our study were between the ages of 17 and 20 and had just graduated from high school before entering university, were born in Canada, and spoke English as their first language. Furthermore, the small number of students whose language of origin was not English made it impossible to investigate the experiences of students who belonged to diverse cultural groups. In the same vein, it is important for readers to consider how similar this sample might be to a sample of first year students in other regions, i.e., to what extent are the characteristics of first year students in a Western Canadian university similar to those of first year students in Atlantic Canada or downtown Toronto? It would be interesting to replicate this study with a cross geographic sample to determine how robust the findings were and how generalizable were the findings to first year Canadian students in general. These cautions notwithstanding, our data does provide some support for Astin's model and suggests that it has potential for explaining the diverse experiences of first year undergraduate students.

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. 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. Our data suggest that intervention focusing on broadening the socialization experiences of young people, especial males, may help to increase awareness of opportunities, and heighten work-related expectations. Experiences designed to heighten work-related motivation may also have a similar effect.

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.

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