

EXPECTANCY AND TASK VALUE AS MEDIATORS OF THE RELATIONSHIP  
BETWEEN SELF-CONCEPT AND CAREER ASPIRATION:  
A GENDER COMPARISON

by

J'Anne Alicia Ward

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APPROVAL

Name: J'Anne Alicia Ward  
Degree: Master of Arts (Psychology)  
Title of Thesis: Expectancy and Task Value as Mediators of the  
Relationship between Self-Concept and Career  
Aspiration: A Gender Comparison.  
Examining Committee:  
Chair: Richard Wright

---

Patticia Kerig  
Senior Supervisor

---

Janet Strayer  
Second Advisor

---

Janny Thompson  
External Examiner  
Faculty of Education,  
Simon Fraser University

Date approved: 14 Dec 95

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### Title of Thesis/Project/Extended Essay

Expectancy and Task Value as Mediators of the Relationship

Between Self-Concept and Career Aspiration: A Gender Comparison

**Author:** \_\_\_\_\_  
(signature)

J'Anne Ward

\_\_\_\_\_  
(name)

April 2, 1996  
(date)

### Abstract

Although women are capable of achieving academically and professionally, they do not exhibit the same achievement and aspiration patterns as men. The present study examined the presence of gender differences on self-system and career aspiration variables. The study also examined the roles of success expectancy and subjective task value as mediators using a model of career aspiration developed from Eccles' (1987) model of achievement-related choices. Undergraduate university students completed self-report questionnaires assessing self-system and perceptions about occupations. Students also listed career aspirations which were rated for sex-type and socio-economic status level. A number of significant gender differences were found. The results of multiple regression analyses failed to provide support for the mediational model but suggested a complex set of relationships exists among the variables examined. Results are discussed in terms of alternative interpretations of the relationships between constructs. Limitations of the study, future avenues of research, and implications of the study for addressing occupational sex-typing are presented.

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## Expectancy and Task Value as Mediators of the Relationship between Self-

## Concept and Career Aspiration: A Gender Comparison

Why do women make achievement choices that do not realize their potential given that their capabilities and competencies are comparable to men? The loss to society resulting from women's absence from traditionally male, high status occupations has been emphasized by a number of investigators (Card, Steele & Abeles, 1980). A common perspective on women's achievement has been to look at women's behavior in terms of failure to realize their potential. In fact, this deficit orientation to women's achievement was so pervasive that women have even been described as "lifelong achievement casualties" by some researchers (Kaufman & Richardson, 1982). The perspective of this study is one that reframed the question of women's achievement and shifts the focus from asking "what are women lacking", to "what factors do women use in making achievement-related choices." Furthermore, this study asked "do women and men differ in the factors they use or in their relative emphasis on those factors?" More specifically, the purpose of this study was to examine the contribution of a number of psychological constructs such as self-competence, instrumentality (masculinity), expressivity (femininity), and sex-stereotypes to college men and women's career aspirations. In addition, based on Eccles' model of achievement-related choices (1987), this study examined whether these variables are mediated through the success expectancies that men and women hold and the subjective value they place on their occupation of choice.

The current investigation of achievement, represented by career aspiration, will begin with a discussion of women's achievement in a historical and cultural context. I will then provide a brief look at achievement models before going on to provide an overview of Eccles' (1987) model of achievement-related choices. This overview is followed by a more detailed presentation of a selected set of the constructs from Eccles' model that were examined in the present study. This introduction will conclude with a list of the hypotheses specific to the current study.

The Historical and Cultural Context of Women's Achievement

Examinations of women's academic and occupational achievement consistently point out that women do not achieve in the same way or to the same status levels as men (McVicar, 1994). Women's intellectual abilities are not reflected in their achievements or their occupational aspirations which are often lower than those of men of comparable ability (Betz, 1993; Kaufman & Richardson, 1983). In addition, women's aspirations and occupational choices are consistently highly stereotypic (Betz, 1993; Washburn, 1994), and the range of occupations held by women is more limited than that of men (Betz, 1993). This concern for women's failure to achieve occupationally at levels commensurate with their abilities has been particularly strongly noted in the literature on achievement in gifted women (Callahan, 1991; Card et al., 1980; Crombie, Bouffard-Bouchard & Schneider, 1992; Hollinger & Fleming, 1988; Tomlinson-Keasey & Little, 1990). However, there is little research that suggests that gifted women differ from other women in making achievement-related decisions. Nor is there research comparing the achievement-related choices of university level men and women. Therefore, this study focused on academically motivated women and men who pursue higher education at the university level.

Women are clearly capable of achieving academically at levels comparable to men (Adelman, 1991; Betz, 1993; Coates & Southern, 1972; Kimball, 1989; Mickelson, 1989), yet they continue to achieve professionally in a manner that is not reflective of the achievement patterns seen among men. Overall more women than men enrol in and complete university degrees although there are not equal numbers of men and women within each field or subspecialty (Adelman, 1991; Statistics Canada, 1991-92, 1992-93). In the 1991-92 academic year 62% of full-time and 52% of part-time students were women (Statistics Canada, 1991-92). In 1991, 56% of all university degrees conferred were to women (Statistics Canada, 1991-92). In 1992, 64% of undergraduate diplomas and certificates, 57% of Bachelor's and first professional (medicine, law, etc.) degrees, 48% of Master's degrees and 32% of Doctoral degrees were awarded to women

(Statistics Canada, 1992-93). At all educational levels, women tend to outperform men (Betz, 1993; Lenney, 1977), yet fewer women than men attain eminence (Crombie, et al., 1992; Read, 1991). These findings have prompted many researchers to wonder why women, particularly the gifted, are under-represented in higher level educational training environments, higher level positions, and higher status occupations (Adelman, 1991; Crombie, et al., 1992), and over-represented in the clerical and unemployed categories (Kaufmann, 1981). Even within female dominated fields men tend to be over-represented in the high level positions (Grimm & Stern, cited in Sewell, Hauser & Wolf, 1980). The occupational achievements and accomplishments of women are also under-rewarded, with men receiving significantly higher earnings (Kaufmann, Harrel, Milam, Woolverton & Miller, 1986; Mickelson, 1989). Thus, ability and talent appear to have almost no relationship to adult achievement for women (Betz, 1993). Before briefly covering the models of achievement, it is important to consider the ways in which women's achievement has been viewed.

#### Perspectives on Gender and Women's Achievement

The predominant theories of women's achievement until the mid-1980s were derived from a deficit perspective that tended to conceptualize women's achievement in terms of failures to realize potential (see Mednick and Thomas, 1993 for a comprehensive review of these theories). As such, women's achievement failures were proposed to arise from psychological deficits such as fear of success, lack of motivation to achieve, and learned helplessness. For example, Horner (1975) proposed that women are motivated to avoid success because of the potential for negative consequences, such as being ostracised or seen as unwomanly. These theories lack empirical support and are inadequate in furthering our understanding of sex differences in achievement-related behaviors (Kaufman & Richardson, 1983; Mednick, 1989). In a comparison of theories of achievement, Eccles, Adler and Meece (1984) did not find support for the utility of fear of success

or learned helplessness in contributing to our understanding of achievement-related behaviors in men or women.

Views on gender differences have frequently endorsed the presence of significant differences between men and women in ability and performance (particularly spatial, mathematical, and verbal). However, authors such as Tavris (1992) suggest that while such differences in group means may be statistically significant they may be irrelevant or meaningless. With respect to intellectual ability, there is certainly much greater within-sex variability than between-sex variability and there is inconsistent support for sex differences in ability (Callahan, 1991; Fausto-Sterling, 1992; Tavris, 1992). When differences do exist, sex alone is a weak predictor. Other characteristics, though they may be sex-related, may better explain differences (Mednick & Thomas, 1993). This suggests that many differences are *gender* differences, the product of sociocultural influences, rather than *sex* differences, the product of biology. It has even been suggested that studies that look for gender differences may be motivated as much by political concerns as by scientific interest (Mednick, 1989).

At this point it is important to clarify the use of the terms sex and gender in this study. The term sex is used when behaviors are believed to be a product of genetics, the term gender is used when behaviors are believed to be a product of socialization or the interaction between sex and socialization. However, when differences between men and women are equivocal as to the balance of genetic and socializing factors, the term sex difference is used because the grouping used to make the comparison is based on biological determinants. Similarly, sex-role refers to beliefs about the cultural prescriptives as to how men and women should act whereas gender-role is used to refer to personal set of beliefs about how the self as a woman or a man may act.

Findings of gender differences on the standard measures of achievement (occupational status, power, and earnings) are common in the achievement literature. Assumptions that achievement should be measured against the traditional male standards of position, income, and

prestige have pervaded achievement research. Indeed, most of the achievement research has been based on conceptions and definitions of achievement derived from an orientation that places individual striving and solitary performance at the forefront (Hashizume & Crozier, 1994). Such a perspective does not allow for idiographic conceptions of achievement, alternative value systems, or the inclusion of other constructs such as collaboration and communality into our understanding of achievement in both women *and* men. Eccles (1986) objected to this use of traditional, Western, male standards to assess achievement and suggested that stereotypically male occupations are viewed as more demanding but not more valuable or more important than stereotypically female occupations. Eccles and her colleagues (Eccles, 1987; Eccles et al., 1984) suggest men and women may differ in the value they place on achievement-related tasks, thus leading them to make different choices. Using this stance, women's failure to achieve by a traditional Western standard can be seen not as a deficit but as an expression of choices based on women's preferences.

For many centuries, neither education nor work were viewed as important or necessary to women. A woman's work was not considered to be important to her except in as much as it provided "pin money" or made ends meet temporarily before marriage (Betz, 1993). Given this sociocultural context, the prevalence of gender difference findings in achievement is not unexpected. A number of external (situational and contextual), interpersonal, and internal (psychological) constructs have been proposed in attempts to explain continued findings of gender differences in occupational aspiration and achievement (an excellent review can be found in Betz, 1993). For example, cultural and societal attitudes towards women in the workplace have been proposed as external barriers limiting women's inclusion in the "traditionally" male, high-status, highly valued, well-paid professions (Battersby, 1989). Social constraints such as restrictions of opportunities open to women (Astin, 1984) and cultural prejudices founded on sex-role stereotypes may have been particularly instrumental in deterring women from aspiring to careers in the high-status domains, particularly in the sciences (Bar-Haim & Wilkes, 1989; Thomas, 1990). Not only

may women set lower aspirations for themselves but they also report that they have difficulty meeting their aspirations in academic, career, and lifestyle domains (Hollinger & Fleming, 1992).

Other factors that have been proposed to contribute to gender differences in achievement include: conflicts between achievement and gender-roles, self-perceptions based on sex-roles and self-esteem (Hollinger & Fleming, 1988), internalized representations of social and societal barriers (Hashizume & Crozier, 1994), and maladaptive patterns of attribution (Bar-Tal, 1978). For example, differences in occupational achievement may be the result of gender differences in attributions for success. Lower self-esteem, associated with external, luck-based attributions for success and/or internal (lack of ability) attributions for failure in women (Bar-Tal, 1978), may result in reduced strivings and a lowering of aspirations. There is evidence that women are more likely to believe that difficulties in academic settings arise from lack of ability and therefore to set lower goals for themselves (Berg & Ferber, 1983). There are also indications that women are especially likely to deny or underestimate their abilities (Belenky, Clinchy, Goldberger, & Tarule, 1986; Callahan, 1991; Fox & Turner, 1981; Miller, 1986; Streit & Tanguay, 1994) or to resist attributing achievements to ability (Long, 1986; Schuster, 1990). These maladaptive attribution patterns may substantially limit women's achievement activities.

The impact of the academic and professional environment on women's achievement has also been considered. University environments and the labour market may differ for men and women, with women receiving less encouragement and being viewed by faculty as less dedicated and less promising (Berg & Ferber, 1983). Historically, it was even proposed that women had inferior intellectual abilities which constrained their achievement (Battersby, 1989). Noble (1989) reported that many gifted women who were confident of their abilities believed that the men and women they worked with were threatened by their intelligence and competence, and that this created unpleasant work environments. In addition, it has been suggested that for a woman working in the prestigious male-dominated professions her biological sex becomes more salient than her

professional ability and status (Epstein, 1975). Epstein concluded that the structure of colleague relationship systems, sponsor-protégé relationships, occupational demands in conflict with sex-role expectations, and occupational sex-typing may all contribute to women's under-representation in many careers.

Historically, there have been substantial sociocultural barriers to women obtaining higher education and professional employment (Battersby, 1989; Betz, 1993; Kaufman & Richardson, 1982). The roles of education and work in women's lives have continued to change over time but women have continued to be largely excluded from the upper, as well as the lower extremes of the occupational status distribution. For example, during the 1970s women's occupational status changed little over their lifetime (Kaufman & Richardson, 1983; Sewell et al., 1980), while men tended to gain status as their careers progressed. These findings cannot be interpreted simply as a reflection of work interruption resulting from family obligations because unmarried and childless women did not differ in status from married women with children. So, although many societal barriers that faced women in their entry into the work force have been lowered, the work force remains highly sex-segregated with most occupations being dominated by one sex or the other (Betz, 1993; Eccles, Jacobs & Harold, 1990). This suggests that other factors, such as internalized barriers or socialized behavior patterns, may be influencing women's achievement.

#### A Brief Overview of Achievement Models

Early models of achievement focused on sociological variables such as educational level and grades, parental occupation and educational level, and parental income and did not generally examine the contribution of psychological variables to achievement. These models generally assessed status attainment (Alexander, Eckland & Griffin, 1975) and occupational and economic attainment (Jencks, Crouse, & Mueser, 1983) Research on achievement using demographic and contextual variables consistently found men attained higher occupational and economic status.



Models of this type generally did not examine the contribution of psychological variables and have been criticized for this omission (Kaufman & Richardson, 1982).

The ubiquity of group (sex) differences in achievement prompted the development of sex-specific models of achievement such as those proposed by Astin (1984); Jencks et al. (1983); and Fassinger (1990). Astin's sociopsychological model (1984), focusing on the social constraints surrounding women's achievement, such as the structure of opportunity open to women and differential socialization of sex-roles, represents one of the early attempts to include psychological variables such as expectancy. More recently, Fassinger (1990) used causal modelling to demonstrate the importance of ability, sex-role attitudes, and personality features in predicting women's career orientation and career choice. A dissatisfaction with the limitations of early models of achievement and status attainment motivated Eccles (1985, 1986, 1987) to propose a complex, multidimensional model of achievement-related choices (see Figure 1). Her model places an emphasis on gender-role socialization, gender-role stereotypes, gender-role scripts, and activity sex-stereotypes. Her perspective also shifts the focus from the notion that women as a group are constrained by deficits in abilities or attributes that have been spuriously sex-linked. The model is not sex-specific and therefore presents an avenue for examining sex/gender differences in achievement-related behaviors. Therefore Eccles's model was chosen for the present study to examine aspiration as an achievement-related choice which may guide achievement behavior. A brief overview of Eccles' model, the constructs extracted from it and the variables selected to represent them in the current study, followed by the specific hypotheses of this study will now be presented.

### Eccles' Model of Achievement-Related Choices

#### Overview

The complexity of Eccles' model can only be appreciated by a comprehensive coverage which cannot be accomplished here, so a general overview is provided (see Eccles, 1987 and

Wigfield & Eccles, 1992 for comprehensive presentations of the model). This multidimensional model organizes constructs using five hierarchically interrelated levels (see Figure 1 for the specific links proposed to exist between each construct). At the first, or outcome, level of the model Eccles' suggests that achievement-related choices are the conscious and unconscious decisions that people make that guide achievement behavior. These choices are determined by the nature of the constructs at the second level, the expectations that a person has about the potential for success in engaging in a task, and the perceived worth or value of the task. These expectations (success expectancies) and values (subjective task value) are derived from components at the third level: features of the self-system that are related to the choice, and affective memories about similar choices. Constructs at the third level are influenced, though not exclusively, by cognitive processing components at the fourth level of the model. At the fourth level are the individual's perception of the cultural mores, and perceptions about the beliefs and attitudes of important socializing figures, such as parents and teachers. Also at this level are the interpretations that individuals make about experiences in terms of attribution and control. At the final, and most distal, level are the constructs concerning events and behaviors which precede the cognitive processing, or are external to the individual. These include the context in which the individual lives (the cultural milieu), the beliefs, attitudes and behaviors of important socializing figures, the individual's aptitudes, and the individual's previous experiences of related events. With respect to the choices that people make, the importance of each of these constructs is in the relevance or applicability of components of each construct to the achievement-related choice. Constructs at this fifth level influence and contribute to constructs at the third and fourth levels of the model.

The inclusion of socialization experiences and the cultural milieu represents an ongoing emphasis on the contribution of contextual variables. For example, McVicar (1994) argues that a focus on psychological variables alone fails to take into account the power and status differentials and discriminatory practices that maintain a system in which one set of attributes, the masculine, is

valued over others. This model also addresses criticisms that achievement models have failed to include self-perceptions of ability and competency by including a self-system construct (Kaufman & Richardson, 1982). The inclusion of both contextual and psychological constructs as important determinants of achievement, is a significant feature of this model.

It has been suggested that late adolescence and early adulthood are the developmental periods during which individuals are most likely to be in the process of translating self-concept variables into career choices and engaging in vocational exploration (Super, 1963a; 1963b; Jordaan, 1963). Consequently, this study examined the self-concepts and career aspirations of undergraduate university students. This use of a university sample represented a departure from previous research utilizing this model that focused on elementary school-age children (Eccles, et al., 1984; Eccles, et al., 1990; Eccles, et al. 1993; Parsons, Adler, & Kaczala, 1982, Parsons, Kaczala, & Meece, 1982; Wigfield & Eccles, 1992; Wigfield & Eccles, 1994; Wigfield, et al., 1991). Although an individual may become more committed to an occupation during late adolescence and early adulthood, the socialization experiences leading to this point may heavily influence the choice of occupation. Therefore, the following discussion of the constructs examined in the present study draws on research from child, adolescent and young adult samples.

The present study examined the relationships among a subset of constructs from Eccles' model. This partial model includes featured of the self-system, success expectancy, subjective task value, and achievement-related choices and was modified to reflect the emphasis on career aspiration (see Figure 2). The constructs included in the partial model and the choices of variables used to represent them will now be presented in more detail, beginning with the outcome construct, achievement-related choices, and working backwards through the factors that contribute to these choices.

### Achievement-Related Choices

Eccles' use of "choice" in the terminal construct is an important feature of this model of achievement. Individuals continually make choices about how to spend time and effort, elements vital to occupational success and achievement. These choices, conscious or otherwise, are influenced by socialization pressures, personal belief systems, and cultural expectations for gender appropriate behavior. By including the element of choice and its determinants, this model facilitates shifting our perspective on achievement from "why aren't women achieving like men" to "what influences the choices that lead women and men to achieve as they do?" There are, however many different choices that any one individual may make in the process of deciding on and pursuing a specific career. Implicit in the choice of ideal career are the level of academic and vocational training that an individual wishes to attain. Therefore the present study focused on career aspirations to represent achievement-related choices.

Aspirations, represented cognitively in the construction of a *possible self* (Markus & Nurius, 1986), may act to focus and organize activity by personalizing the goal. Aspirations, the expression of what one would like to achieve in the future, may act as important enabling or constraining features in the construction of a *possible career self* that then organizes and determines career achievement-related behaviors and vocational exploration (Hulbert, 1993). The more distinct and attractive a possible self is, the more compelling it may be in orchestrating behavior (Markus & Ruvolo, 1988). The construction of a number of possible career-selves may be particularly important in the determination of career aspirations. Since future career-selves are not yet confirmed by social experience they are susceptible to modification by changes in situational and environmental factors (Markus & Nurius, 1986; Schuster, 1990). The possible career-self, viewed as a derivative of self-concept (Starishevsky & Matlin, 1963; Eccles, 1985, 1986, 1987), may be expressed in possible career-choices, or aspirations. Aspirations, as such, may be altered by experience.

Coates and Southern (1972) suggest that women are socialized to have lower aspiration levels than men. There are also indications that academic aspirations and intellectual self-esteem decline significantly in women during their years in university (Arnold, 1993a; Benbow & Arjmand, 1990). Even in the face of excellent academic performance women experience a loss of personal and career confidence while in institutions of higher education (Betz, 1993). Women's occupational aspirations are often lower than those of men of comparable ability (Betz, 1993; Kaufman & Richardson, 1983). Therefore, aspirations may provide an avenue to determining whether women have internalized some of the barriers to achievement by setting lower aspirations for themselves which then limit their current behavior and restrict them from the type of achievement we see in men.

Sex differences in aspiration are also seen among children and adolescents. Occupational aspirations may become restricted as a function of gender-role beliefs as early as 6 to 8 years of age (Betz, 1993). At school entry girls' aspiration levels exceed boys' but by late elementary school boys' aspiration levels exceed girls' (Brook, Whiteman, Peisach & Deutsch, 1974). In a study of a group of gifted adolescents in the 1960s girls were found to have lower aspiration levels than their male counterparts even though they had higher grades and more honours (Kerr, 1985). These findings may reflect sex-role acculturation and awareness of the higher status accorded males and masculine occupations (Brook, et al., 1974). These findings also suggest that we should find significant gender differences in career aspirations in a sample of university undergraduates.

In a group of gifted young adults, sex emerged as the one most conspicuous determinant of aspiration and attainment (Arnold, 1993b). Although more women (48%) than men (34%) were working on or had completed graduate degrees, women were more likely than men to earn terminal Master's degrees in programs offering doctoral degrees (Arnold, 1993b; Berg & Ferber, 1983; Coates & Southern, 1972). Men had significantly higher mean occupational levels, and while 50% of the women were working in traditionally male-dominated fields none of the men were working in

traditionally female-dominated fields (Arnold, 1993b). This suggests that men's and women's aspirations may differ as to sex-type, with men choosing more masculine occupations and women choosing both masculine and feminine occupations.

Indications that parents apply gender stereotypes of ability and expectancies for success that influence children's perceptions even before they begin school (Callahan, 1991) may explain findings of sex-typing of occupations by pre-school children (Betz, 1993) as well as in adults. These occupational sex-stereotypes, once established, are highly resistant to change both within the individual and society (Betz, 1993; White, Kruczek, Brown, & White, 1989), although there is some evidence that these occupational sex-stereotypes have become slightly less stereotypic than in the past (White, et al., 1989). Attempts to justify sex-typing of occupations based on the congruency of occupational requirements with masculine and feminine qualities have generally failed to find support (Betz, 1993). Men and women appear to sex-type occupations in the same way and the perceived proportion of men and women in an occupation appears as the best predictor of occupational sex-type (Betz, 1993; White et al., 1989). Given the relative resistance of sex-stereotypes to change, occupational sex-typing and gender-segregated occupational structures are likely to continue to play important roles in achievement particularly for women (Mickelson, 1989; Ruble, Cohen, & Ruble, 1984) and it is expected that in the present study men's and women's career aspirations will differ along the dimensions of status (socio-economic) and sex-type.

#### Success Expectancies and Subjective Task Value: Mediating Achievement-Related Choices

A significant feature of Eccles' model is the designation of success expectancy and subjective task value as mediators of achievement related-choices. The model thus facilitates the investigation of the causal roles of success expectancy and subjective task value in determining gender differences in career aspiration. If gender differences exist in either success expectancy or subjective task value, it is also possible that differences will exist in career choices, or in the case of the present study, career aspirations. Eccles (1987) proposes that the socialization experiences

of men and women do differ and that this differential socialization produces sex differences in success expectancy and subjective task value and, consequently, differences in career aspiration.

Success expectancy and subjective task value are believed to be cognitive constructs (Wigfield & Eccles, 1992) that are determined by socialization experiences, previous performance on related tasks, the interpretations (attributions) of those performances, perceptions about self and others, perceptions of task difficulty, and other task-specific beliefs such as sex-appropriateness, gender role beliefs, and the cultural milieu. Success expectancy and subjective task value, in turn, are proposed to have the most direct influence on achievement related-choices (Wigfield & Eccles, 1992; Eccles, 1987).

Success Expectancy. Success expectancies are judgements about the likelihood of doing an activity well, being rewarded for it, and performing successfully in comparison with others, particularly in competitive contexts.

It has been suggested that parents' sex-stereotype beliefs play a critical role in the maintenance of sex-differences in achievement patterns via their influence on the development of sex differences in success expectancy (Parsons, Adler, & Kaczala, 1982; Parsons, Kaczala, & Meece, 1982). Parental beliefs and teacher expectancies have been found to influence children's self-concepts and expectancies more than actual performance (Parsons, Adler, & Kaczala, 1982; Parsons, Kaczala, & Meece, 1982; Phillips, 1987). Parental perceptions of children's ability also tend to be highly sex-stereotypic regardless of the similarity between boys and girls and the actual performance characteristics of their child. (Parsons, Kaczala, & Meece, 1982). Therefore, subsequent gender differences in self-perceptions of ability may promote men and women to select different education paths and to aspire to different occupations (Eccles et al., 1990). Aspirations of older children have been found to be more highly correlated with parental expectations for actual outcomes than with parental ideals for their children or children's actual performance (Brook et al., 1974).

In general, there has been evidence that girls tend to have lower expectancies for reward and reinforcement for academic activities than boys (Crandall, 1975). Although Stipek and Hoffman (1980) did not find sex differences in expectancies for success among children, they did observe a tendency for high achieving girls to report lower expectancies for success than other girls. These findings suggest that success expectancy will be related to career aspiration and that there may be gender differences in success expectancy.

Subjective task value. Subjective task value is a multidimensional concept containing four dimensions: attainment value, intrinsic value, utility value, and perceived cost (Eccles & Wigfield, 1992). Attainment value refers to the importance of doing well and of having an opportunity to demonstrate competence, ability or personal qualities. Incentive value refers to the believed enjoyment that will be derived from performing an activity. Utility value is the consideration of how activities will facilitate future or long-range goals. Perceived cost refers to the set of beliefs about potential losses, amount of effort needed or negative emotional consequences that may result from engaging in one activity instead of an alternative activity. Therefore, subjective task value is the relative value attached to an option, and its related activities, that is available to an individual. Although there is some support for the distinctions among the four proposed facets of subjective task value, there is little evidence that suggests any one of them may be more or less important in terms of career aspiration. It is possible that an attenuation in any one of these facets may lower the overall value placed on an activity and reduce the likelihood of engaging in that activity. Therefore, for the purposes of the present study, these value dimensions are included in a single, composite measure of subjective task value.

Eccles (1987) suggests that men and women may be socialized to value different achievement-related tasks and that these differences may mediate the gender differences in achievement-related choices. Eccles and her colleagues (Eccles et al., 1984; Eccles, 1987) suggest



that subjective task value may be playing a more dominant role when choosing options from a larger number of choices and a less dominant role when choices are limited.

The limited research on the socialization of subjective task value suggests that sex-differences in task values, particularly in achievement, emerge very soon after children begin school and that while overall level of value may change over time the sex differences do not (Wigfield & Eccles, 1992; 1994). Eccles has found evidence for the presence of gender-role stereotypic differences in children regarding the value they attached to different activities (Eccles, Wigfield, Harold, & Blumenfeld, 1993). In particular, subjective task value has been demonstrated to act as a mediator of math achievement and math participation (Eccles, et al., 1984).

Expectations about the roles that one would like to fulfil in one's lifetime and the values of those roles are important determinants of achievement behavior in women (Arnold, 1993b) and may influence aspirations and attainment more than actual life events. These observations underscore the importance of examining expectations and values as determinants of achievement-related choices. More specifically, the emphasis in the present study is on the significance of examining success expectancies and subjective task value as possible mediators of career aspiration.

### Self-System Variables

The next important construct of the model is the consideration of the elements that contribute to success expectancy and subjective task value. Eccles (1987) proposed that the development of gender differences in success expectancies and subjective task value is a product of gender-role socialization. In the present study the elements of the self-system that will be considered are: global self-concept, task related domain-specific self-concept, self-attributes and activity stereotypes. The inclusion of these variables is based on the Eccles' (1987) suggestion that as the match between self-schemata and activity stereotypes increases the probability of making a given achievement decision and engaging in goal directed behavior increases. The importance of

these variables is also based on the suggestion that concordance of self-concept to gender-role concept may be more important in determining aspirations than the agreement of self-concept with role expectations imposed by others (Super, 1963).

Global and domain-specific self-concept. Self-concept as a function of confidence in one's abilities is a dominant theme in the achievement literature (Washburn, 1994). Women are clearly highly motivated to achieve (Mednick & Thomas, 1993; Mickelson, 1989) although they may show lower self-confidence in achievement-related areas (Streit & Tanguay, 1994) and in situations in which their performance will be compared to or evaluated by others (Lenney, 1977). Women even expect to do less well than male peers in traditionally female high-status positions (Lenney, 1977). Women, particularly those of high ability, tend to underestimate their abilities (Belenky, et al., 1986; Fox & Turner, 1981; Miller, 1986), reject the label of giftedness (Kerr, 1985; Schuster, 1990) or deny that their achievements may be attributed to exceptional ability (Long, 1986; Schuster, 1990). This tendency to underestimate abilities may be influenced by the absence of clear and unambiguous feedback (Lenney, 1977), a relatively common context for females (Parsons, Kaczala, & Meece, 1982). These maladaptive patterns of attribution whereby women underestimate their abilities, have lower expectancies for success, and fail to attribute success to ability, may arise through socialization practices (Bar-Tal, 1978; Eccles, 1987). Therefore, confirmation of one's abilities from the social environment may play a crucial role in the development of a stable set of perceived competencies within the self-concept (Markus, Cross, & Wurf, 1990). For example, mothers' gender stereotypic beliefs have been found to influence their perceptions of their children's abilities. These perceptions have, in turn, been found to influence children's self-perceptions of competence (Jacobs & Eccles, 1992; Phillips, 1987). Thus gender stereotypic beliefs and the sex-typing of ability may be perpetuated through socialization.

Women may be socialized to hold lower perceptions of their competence, leading to poorer self-concept and lower expectancies for success in women than men. Thus, perceptions of

competence could come to limit overall achievement performance through the limiting of aspirations. Perceived competence may be represented in the possible-self and therefore be as or more important than actual competence in the construction of possible career-selves which then organize, guide, and evaluate future achievement-related performance (Eccles 1987; Jordaan, 1963; Marcus, Cross, & Wurf, 1990; Super, 1963a, 1963b; Washburn, 1994). Yet relatively few studies have been conducted examining how self-concept contributes to achievement-related behaviors (Mednick & Thomas, 1993). A major exception to this overall paucity of research examining the relationship between beliefs about the self and achievement is the work by Betz (1992) in the area of self-efficacy. This research has found that self-efficacy is influenced by past accomplishments, vicarious learning, emotional arousal, and encouragement (Betz; 1992; Hackett & Betz, 1989; 1990). Self-efficacy has also been demonstrated to impact on occupational pursuits (Betz & Hackett, 1986; 1987) and academic achievement among college students (Hackett & Betz, 1992). This work supports the idea that self-competence, particularly in the academic and occupational domains, will be related to achievement-related choices

Although earlier studies of self-esteem in academic achievement settings found that men's self-esteem was higher than women's (Astin & Kent, 1983), several recent studies have not found sex differences on global measures of self-esteem (Josephs, Markus, & Tafari, 1992; Wigfield & Eccles, 1994). Josephs et al. (1992) suggest, however, that there may be gender differences in self-definition, with self-esteem relating to autonomy (individuation, distinctiveness, and uniqueness from others) in men and to connection (interdependence, maintaining connections and good relations) in women. McVicar's (1994) meta-analysis of gender differences in self-concept concluded that there are no reliable sex differences in the strength of the relationship between self-concept and achievement. A potential explanation for these findings is that there may be sex differences in domain-specific self-esteem (Wigfield & Eccles, 1994; Wigfield, Eccles, MacIver, Ruman, & Midgley, 1991) but not global self-esteem. Alternatively, women may just be more

modest in self-report (Eccles, et al., 1984). Either way, global measures alone may fail to capture sex differences influencing achievement-related choices.

Although self-concept has been conceptualized as multifaceted, multidimensional, and hierarchical in structure (Byrne & Shavelson, 1986; Harter, 1990; Marsh & Shavelson, 1985; Super, 1963a), global self-worth has been studied more often in the context of achievement (Mednick & Thomas, 1993). The delineation of general self-concept into smaller relevant domains and the development of measures tapping these domains (Neeman & Harter, 1986) provide an avenue to discriminate which facets of the self-concept are relevant to a particular activity or theoretical construct. For example, appearance may be relevant to fashion choices but not academic achievement, whereas scholastic ability may be germane to academic achievement but not clothing purchases. Eccles and her colleagues (Eccles, et al., 1984) suggest that although findings of sex differences in competence are common there is no indication that women have generalized low self-concept/expectancy beliefs. Instead, she believes that sex differences relating to self-concept and expectancies are task specific. Consequently, whether a sex difference in self-concept is found may be a function of the relevance of an activity and whether a global or domain specific measure of self-esteem is used.

Some research has questioned whether the self-concept structure is the same for both sexes, with some indications that although the dimensions and structure may be invariant across gender, the relationships between domains and general self-concept are not (Byrne & Shavelson, 1987). Marsh (1993) suggests that any given self-concept domain may be more or less important than other domains for any given activity and that the domains which are relevant to an activity may differ between the sexes. Therefore, the contribution of general and domain specific self-concept to achievement related-choices may differ for men and women.

It has also been suggested that discrepancies between the importance of a domain to an individual and the perceived self-competence in the domain impact on global self-esteem (Neeman

& Harter, 1986; Pelham & Swann, 1989). Marsh (1993) contends, however, that the effect that activities in a given domain have on self-concept does not vary in terms of the importance of that domain to an individual. For example if school performance is important to scholastic self-concept it does not matter if scholastics are important to an individual, if they do poorly in school they will have a lower scholastic self-concept than a student who performs better at school. Regardless, global self-esteem may in turn influence behavior. Therefore, measures of specific self-concept domains may yield important clues to women's and men's career aspiration choices. More specifically, job competence, scholastic ability, intellectual ability and global self-concept may influence the status level of the career aspiration. Perceptions of social acceptance, on the other hand, may influence career choices that deviate from culturally prescribed sex-roles. Men and women may feel more or less pressured to modify career aspirations to match societal standards for sex-appropriate behavior depending on how important it is that they be accepted within a specific occupation and within society at large. For example, Hoffman (1987) suggested that the feminine motive to achieve is expressed in maintaining affiliative and affective relationships and that performance is sacrificed if these affiliations are threatened. There is also evidence that by late childhood girls appear to be more interested in peer acceptance than intellectual development (Fox & Turner, 1981). Therefore, domain-specific measures of job competence, scholastic ability, intellectual ability, social acceptance as well as a measure of global self-concept are included in the present study.

Gender-typed personal attributes. The following discussion of gender-typed personal attributes uses the terms *instrumentality* and *expressivity* in the place of the more commonly used terms masculinity and femininity, respectively (see Helmreich, Spence, & Wilhelm, 1981 for a discussion of these terms). This substitution is based on criticisms that the use of the terms *masculinity* and *femininity* perpetuate inaccurate, sex-based stereotypes and assumptions about behavior, and that they are not descriptive of behavior (Betz 1993; Hare-Mustin & Maracek, 1988;

Long, 1986). Thus, the terms instrumentality and expressivity provide more descriptive labels for the qualities and behaviors they include (Long, 1989).

Traditional Western socializing agents are typically highly sex-stereotypic in designating which domains are male- and female-appropriate, thus creating contexts and ways of acting in the world that differ in important ways for men and women (Block, 1983; Hoffman, 1975). Males come to describe themselves using concepts of agency, efficacy, and instrumentality while women come to describe themselves using concepts of communality, social cohesion, and expressiveness (Block, 1983). Hoffman (1975) proposed that male effectance came from mastery while female effectance came from the ability to elicit the aid and protection of others. At the same time that mastery is valued by society and is a prerequisite for success in many professions, stereotypic Western socialization practices may fail to encourage the development of mastery in girls by failing to encourage independence and exploration (Hoffman, 1975; Streit & Tanguay, 1994). However, for both sexes, self-esteem may be related to fulfilling culturally mandated gender-appropriate norms for behavior.

Kwa (1994) suggests that women may place more emphasis on evaluating themselves along a dimension of interpersonal competence. Thus it may be possible that women will place an emphasis on their interpersonal (expressive) qualities when making occupational achievement decisions. While some research has found that instrumentality but not expressivity was related to self-esteem in men and women (Long, 1990, 1992), other research has found that both are significantly related to self esteem (Spence, Helmreich & Stapp, 1975) but that the relationship is stronger for instrumentality (Hollinger & Fleming, 1988). The discrepancies among these findings may be an artifact of the different measures of femininity/expressivity and masculinity/instrumentality used and the different populations sampled.

Instrumentality, ability, and an emancipated stance on sex-roles (Betz, 1993; Fassinger, 1990), as well as a host of other personal attributes and attitudes that emphasize a positive self-

concept, competence, and androgyny (Betz, 1993) have been found to influence women's career development. Self-perceptions of instrumentality, and expressivity to a lesser degree, predicted occupational self-confidence and life satisfaction in a sample of gifted adolescent girls (Hollinger & Fleming, 1988). While instrumentality and sex-role attitudes predict career orientation (the importance of a career to an individual), instrumentality and ability have been found to predict career choice. In particular, instrumentality has been related to the pursuit of non-traditional careers in science related, high prestige occupations among women (Fassinger, 1990). These findings support the inclusion of interpersonal and relational components (i.e., expressivity), as well as instrumentality, in the study of achievement for both men and women. Therefore, self-endorsement of instrumental and expressive attributes should be predictive of career aspiration and is therefore included in the present study as a facet of the self-system construct.

Activity stereotypes. Gottfredson (1981) indicates that at about the ages of 6 to 8 years an orientation to sex roles predominates in self-concept formation. This early attention to sex roles may influence the construction of occupational preferences in childhood. Over time, as a function of continued self-concept definition, occupational preferences may become more circumscribed. Therefore, sex-role beliefs about appropriate behavior and sex-role stereotypes of the attributes inherent in various careers may limit the range of options that females consider (Ruble, et al., 1984). For example, girls may be more likely than boys to receive messages that produce a conflict between sex-role prescriptions and the idea that one can "be anything" (Reis, 1987). In an older study of students in grades 3 to 12, Simmons & Rosenberg (1975) found girls tended to be less positive about the stereotypical sex roles and were more likely to deviate from their prescriptive than boys. There is also some evidence that girls experience greater conflict and confusion over competing life goals (Card, et al., 1980; Fox & Turner, 1981). In general, students who perceived greater future opportunities had more positive attitudes about their gender-consistent sex role and their self-image. Although more recent studies of career plans and sex-role attitudes have not found

significant sex differences (Dunnell & Bakken, 1991) there are suggestions that males continue to hold more stereotypic sex-role beliefs (Galambos, Almeida, & Peterson, 1990; O'Keefe & Hyde, 1983). Sex-role stereotypes are not, however, identical among individuals. They are multidetermined and substantial individual differences in the use of sex-role stereotypes may exist (Deaux & Kite, 1993). These observations and the work of Gottfredson (1981) suggest that an examination of occupation sex-stereotypes may yield promising information about gender differences in aspiration. Therefore, idiographically determined sex-stereotypes of occupations specified by university students are included in the present study to represent activity stereotypes.

### Summary

Eccles, in agreement with Astin (1984), suggests that socialization practices may constrain women's achievement in a number of ways. The entire model is too complex to use in its entirety, therefore the following constructs were the focus of this study: self-system, success expectancy, subjective task value, and achievement-related choices. This choice of constructs and the variables that have been selected to represent them closely parallels the observation by Ruble et al. (1984) that occupational aspiration, self-concept, occupational sex-typing, and sex-stereotypes are highly interconnected. Women may choose not to enter certain careers for reasons other than lower levels of self-esteem or lower levels of perceived competence or ability. Women may choose not to enter a given profession not simply because they have lower overall aspirations, or lower levels of perceived competence, but because they have lower expectancies for success and negative beliefs about the value of engaging in that profession. Alternatively, women may not perceive traditionally high-status occupations to be of value to themselves, their families, or society. Eccles' model of achievement-related choices provides a framework with which to examine gender differences in career aspirations and an opportunity to value the choices that are made by both men and women. At the same time, this model questions the socialization practices generating those choices.



### Purpose and Hypotheses

The purpose of the present study was two-fold. Firstly, it was designed to examine gender differences in self-concept, self-perceptions of instrumentality and expressivity, occupational gender-stereotypes, and career aspirations using university student self-reports. Secondly, this study examined the roles of success expectancy and subjective task values as mediators of the relationships among self-concept, career sex-stereotypes, and career aspirations for men and women.

As an initial examination of the contribution of activity (occupation) sex-stereotypes to career aspiration, the analyses for the occupation sex-stereotype (perceptions about the occupation) variables were run separately from the self-concept (perceptions about the self) variables. The hypotheses regarding self-concept are presented first and are followed by the hypotheses regarding occupation sex-stereotypes.

#### Specific Hypotheses about Self-Concept

- a) Based on previous research findings that women out-perform men academically at all levels (Lenney, 1977), it was expected that women would report a higher mean grade point average.
- b) Based on the work of Eccles and her colleagues (Wigfield et al., 1991; Wigfield & Eccles, 1994), and Harter and her colleagues (Neeman & Harter, 1986), it was expected that men and women would not differ on global self-concept. However, with respect to domains specific to this study, it was predicted that men's ratings would yield importance-competence discrepancy ratings that were less detrimental to self-esteem than those found for women.
- c) Based on the findings that males describe themselves in instrumental terms and women describe themselves in expressive terms (Block, 1983), it was expected that women would obtain significantly higher expressivity scores and men would obtain significantly higher instrumentality scores.

- d) Since the career aspirations are self-defined no specific hypothesis regarding gender differences in success expectancy and subjective task value were proposed.
- e) Based on previous findings (O'Keefe & Hyde, 1983; Betz, 1993), men and women were predicted to differ on both aspiration status and aspiration sex-type. University men and women were predicted to choose occupations with status scores above the mean across occupations. In addition, it was predicted that the mean aspiration status score for men would be higher than the mean aspiration status score for women. With respect to aspiration sex-type, mean scores were predicted to fall in the masculine range for both sexes, but it was expected that the mean sex-type would be more masculine for men than for women.
- f) Self-concept variables were predicted to correlate with aspiration variables in the same ways for men and women: As self-concept became more positive, aspiration status would increase, and sex-type would become more masculine. It was predicted that as instrumentality increased aspiration status would increase and aspiration sex-type would become more masculine for both sexes. It was also predicted that as expressivity increased aspiration status would decrease, and occupation sex-type would become more feminine for both sexes.
- g) Self-concept variables were predicted to relate to success expectancy in the following ways. Increases in expectancies for success would correspond to a more positive self-concept, and higher instrumentality ratings in both sexes. Given the discrepancies in the literature regarding expressivity no specific predictions about the direction of the relationship between expressivity and success expectancy were proposed.
- h) Self-concept variables were predicted to relate to subjective task value in the following way: Increased subjective task value would correspond to a more positive self-concept in both sexes. No specific predictions concerning the direction or the degree of the relationship between subjective task value and instrumentality or expressivity were proposed.

- i) Although there were no specific predictions regarding gender differences in the applicability of the proposed mediational model, each of the following paths were tested separately for men and women and comparisons between them were made.
  - i) Success expectancy as a mediator of the relationship between self-concept and career aspiration status,
  - ii) Subjective task value as a mediator of the relationship between self-concept and career aspiration status,
  - iii) Success expectancy as a mediator of the relationship between self-concept and career aspiration sex-type,
  - iv) Subjective task value as a mediator of the relationship between self-concept and career aspiration sex-type.

Specific Hypotheses about Occupation Sex-Stereotypes

- a) Based on recent support for gender differences in sex-role beliefs (Galambos, et al., 1990), it was predicted that men would rate occupations more stereotypically by endorsing more masculinity items for masculine sex-type aspirations and more femininity items for feminine sex-typed occupations.
- b) Occupation sex-stereotypes were predicted to relate to success expectancy in the following ways. Increases in expectancies for success were predicted to correspond to increases in feminine stereotype ratings for women. Decreases in expectancies for success were predicted to correspond to increases in masculine stereotype ratings for women. No predictions were made for men.
- c) Occupation sex-stereotypes were predicted to relate to subjective task value in the following ways. Increases in subjective task value were predicted to correspond to increases in masculine stereotype ratings in both men and women. Decreases in subjective task value were predicted to correspond to increases in feminine stereotype ratings in both men and women.

- d) Occupation sex-stereotypes were predicted to correlate with aspiration variables in the same ways for men and women: As feminine stereotype ratings increased aspiration sex-type would become more feminine and aspiration status would decrease, and as masculinity stereotype ratings increased aspiration sex-type would become more masculine and aspiration status would increase.
- e) Although there were no specific predictions regarding gender differences in the applicability of the proposed mediational model, each of the following paths was tested separately for men and women and comparisons between them were made.
- i) Success expectancy as a mediator of the relationship between occupation sex-stereotype and career aspiration status,
  - ii) Subjective task value as a mediator of the relationship between occupation sex-stereotype and career aspiration status,
  - iii) Success expectancy as a mediator of the relationship between occupation sex-stereotype and career aspiration sex-type
  - iv) Subjective task value as a mediator of the relationship between occupation sex-stereotype and career aspiration sex-type.

## Method

### Participants

A total of 225 undergraduate students, 117 women and 108 men, were recruited to participate in a study on career choices. These sample sizes of at least 103 subjects are sufficient to detect medium effect sizes in a multiple regression using seven independent variables and one mediator variable with  $\alpha = .05$  and power = .80 (Cohen, 1992, p.158). Participants were recruited through a departmental subject pool, a volunteer subject pool, individual psychology classes, and handbills posted through out the campus. Participants obtained through the departmental subject pool ( $n=158$ ) received one hour of research participation credit. Participants obtained through other

recruitment methods ( $n=67$ ) received \$5 each. All participants also received a ticket for a \$300 draw that was made on completion of the data collection. All students except four were currently enrolled in at least one undergraduate psychology course.

The demographic characteristics of the sample are summarized in Table 1. The mean age of participants was 21.76 years, with a range of 18 to 42 years. The mean age for males ( $M=21.38$  years,  $SD = 3.52$ ,  $n=108$ ) did not differ significantly from the mean age for females ( $M=22.12$  years,  $SD = 4.87$ ,  $n=117$ ),  $F(2, 225) = .92$ ,  $ns$ . Males and females did not differ in ethnicity,  $\chi^2(3, N = 225) = 6.78$ ,  $ns$ , with the majority of the sample indicating they were Caucasian (64%) and the remainder identifying themselves as Asian (26.2%), Other (4.9%), or Not Specified (4.9%).

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Insert Table 1 About Here

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### Procedure and Measures

Students volunteering for the study were asked to read an information sheet outlining the main objective of the study and the procedures to be used. All students who read the information sheet elected to take part in the study. Students were then asked to sign a consent form indicating that they had read and understood the procedures, requirements, and possible benefits of the study. All participants were informed that they could discontinue their participation at any point without penalty. No subjects withdrew their participation before completing the study. Participants then completed a questionnaire about their personal academic background and the careers in which they were most interested as well as a series of questionnaires on self-concept, personal attributes, and academic/occupational expectations. Questionnaires were administered in the same order to each subject so that any potential priming effects would be consistent across subjects. Self-concept measures were administered first, followed by occupational stereotype measures, while expectancy

and value measures were given last. On completion of the questionnaires participants were given a general overview of the purpose of the study, a copy of the information sheet, a copy of the consent form, and an (optional) ethics review form.

The Self-Perception Profile for College Students (Neeman & Harter, 1986). The Self-Perception Profile for College Students was administered as a measure of global self-concept as well as to provide indicators of self-perception in the specific domains of job competence, scholastic competence, intellectual ability, and social acceptance. This instrument, designed for assessing self-concept in 18-23 year olds, is composed of two parts: What I Am Like and Importance Ratings. The 54-item What I Am Like yields a global self-worth score as well as providing measures of perceptions of competence in twelve specific self-concept domains: scholastic competence, intellectual ability, creativity, job competence, athletic competence, physical appearance, social acceptance, close friendships, romantic relationships, relationships with parents, morality, and sense of humour. Internal consistency, as demonstrated by coefficient alphas, ranges from .76 to .92 for the twelve domains (Neeman & Harter, 1986) . Coefficient alphas ranged from .70 to .92 for competence ratings in the present sample of university students. The 24-item Importance Ratings yields twelve subscales paralleling the specific domains of the What I Am Like. Discrepancy scores for the scholastic competence, job competence, intellectual ability, and social acceptance domains were derived by subtracting the competence ratings from the importance ratings. Positive discrepancy scores (importance ratings greater than competence ratings) may reflect an internal state which decreases self-worth but negative discrepancy scores (importance ratings less than competence ratings) may reflect an internal state that boosts self-worth. Neeman and Harter (1986) excluded those individuals who did not attain the maximum possible score on a domain's importance rating as they were examining the impact of positive discrepancies in the most important domains only (detrimental to self-worth) on global self-concept. All discrepancy scores, since they may represent possible regulators of career self-

concept, were believed to be germane to the present study because the specific domains of interest are held to be relevant to all individuals with respect to career choices. Therefore, in the present study discrepancy scores were calculated for all subjects, regardless of overall importance rating. Six participants (3 male and 3 female) filled out the What I Am Like in such a way as to make scoring impossible, and therefore data from those subjects were excluded from analyses using items from this questionnaire.

The Personal Attributes Questionnaire, Extended Version (EPAQ; Spence & Helmreich, 1979; Spence, Helmreich, & Stapp, 1974). Self-perceptions of instrumental and expressive qualities were obtained using the Personal Attributes Questionnaire, Extended Version. This measure of sex-role orientation consists of 40 bipolar items rated using a 5-point Likert-type scale. The items are grouped in six scales with coefficient alphas ranging from .41 to .75 for female college students and .46 to .75 for male college students (Helmreich, et al., 1981). Coefficient alphas for the sample as a whole in the present study ranged from .70 to .80. Only the positive masculine ( $M^+$ ) and positive feminine ( $F^+$ ) scales were used in the present study. The  $M^+$  is composed of instrumental qualities that are socially desirable in both sexes but stereotypically more characteristic of men. The  $F^+$  scale is composed of expressive qualities that are socially desirable in both sexes but stereotypically more characteristic of women. Although generally discussed in terms of masculinity and femininity, factor analyses provide sufficient evidence for the construct and predictive validity of the EPAQ as a measure of instrumentality and expressivity (Helmreich, et al., 1981).

The Adjective Checklist (ACL; Gough & Heilbrun, 1983). Participant's perceptions of the sex-role stereotypes of occupations were determined using the Adjective Checklist. The use of the ACL for this purpose has been supported by a number of studies (Heilbrun and Bailey, 1986; Williams & Bennett, 1975). The ACL, composed of 300 adjectives, was administered in its entirety. Participants were asked to indicate those adjectives they believed reflect the general

stereotypes that people have about people working in the career in which they were most interested. Those adjectives endorsed that also appear on a list of adjectives representative of sex-role stereotypes were summed to provide a measure of perceptions of occupations as conforming to masculine and feminine sex-role stereotypes. The 30 items representing a masculine sex-role stereotype and 38 items representing a feminine sex-role stereotype were selected on the basis of college student judgements of favourability (Heilbrun & Bailey, 1986). Reliability indicators for the two scales were not provided. However, the following criteria were used to determine the items comprising each scale. To be included on each list each trait was required to have a favourability score (as a trait more reflective of a man or woman) greater than one standard deviation from the mean. The mean favourability scores for the two lists do not differ statistically. Endorsement rates of all traits on both lists exceeded 10% in self-descriptions of both male and female college students. The masculine items represent three clusters of traits: instrumental goal orientation, mastery/dominance and rationality/unemotionality. The feminine items represent two clusters of traits: expressive qualities relating to interpersonal relationships (qualities that initiate or sustain mutually rewarding relationships and interpersonal style), and emotionality/irrationality.

Career Expectations and Values Survey. This 14-item survey was developed by the present researcher as a measure of success expectancy and subjective task value specifically targeting university students' beliefs about the career in which they are most interested (see Appendix). Items were derived from descriptions of the success expectancy and subjective task value constructs found in Eccles (1985, 1987), and Kaufman & Richardson (1983). The success expectancy items include questions about how easy it would be to complete the requirements for and obtain a position in the career one is most interested in pursuing. The subjective task value items include questions about the personal satisfaction and personal costs involved in pursuing a self-specific career. Each item was rated using a 7-point Likert scale. The items form two 7-item scales; success expectancy and subjective task value with coefficient alphas of .57 and .62



respectively. A mean score, with a possible range from 1 to 7, was computed for each scale. High expectancy scores reflect lower expectations for success and high value scores reflect higher subjective task value.

Career Aspirations. Participants were asked to nominate several careers in which they were interested, starting with the one they were most interested in pursuing, as an indication of career aspiration. These careers were then coded using the sex-typing ratings provided by White et al. (1989) and the 1981 socio-economic index for occupations in Canada (Blisshen, Carroll & Moore, 1987). White et al. (1989) provide a sex-typing index for 106 occupations. Sex-type scores range from 1 (highly masculine, e.g., farmer = 1.89) to 7 (highly feminine, e.g., secretary = 6.23;  $M=3.71$ , range = 4.34 scale units). Blisshen et al.'s (1987) socio-economic index provided ratings based on income, education, and prestige for 514 occupations ( $M=42.74$ ,  $SD=13.28$ , range = 17.81 to 101.74).

## Results

Results are organized to parallel the ordering of hypotheses. All statistical tests addressing the hypotheses of this study used an alpha level of .05. All posthoc analyses used an alpha level of .01 to account for the number of posthoc comparisons suggested by the correlational and regression findings.

### Gender Comparison of Grade Point Average

As predicted males and females differed significantly on grade point average, with females reporting a higher mean GPA than males (see Table 1). Because this difference could potentially be a confound in the interpretation of the results of the inferential statistical tests, all regressions were run controlling for GPA.

Gender Comparisons on Self-Concept, Success Expectancy, Subjective Task Value , and Aspiration Variables

Comparisons of men and women on variables used in testing the hypotheses regarding self-concept are presented in Table 2.

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Insert Table 2 About Here

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Self-Concept. A number of the findings comparing men and women on self-concept predictor variables were as predicted. As expected, men and women did not differ on global self-concept. The prediction that men and women would differ on the domain-specific self-concept variables was confirmed for scholastic ability discrepancy, intellectual ability discrepancy, and social acceptance discrepancy but not job competence discrepancy. As expected, in all cases women's mean discrepancies were more positive in value, reflecting a potentially negative impact of self-perceptions in these domains on their self-esteem. The only negative mean discrepancy score, reflecting a less damaging impact of perceived self-competence on self-esteem, was for males on intellectual ability. The prediction that men would obtain significantly higher instrumentality scores was supported, as was the prediction that women would obtain higher expressivity scores.

Success Expectancy and Subjective Task Value. No specific hypotheses about gender differences on the proposed mediators, success expectancy and subjective task value were made. The comparison of men to women on these variables yielded no significant differences.

Aspiration. As expected, men and women had mean career aspiration status scores that were above the mean for the socio-economic index. The prediction that the mean status score for men would be higher than the mean status score for women was not supported. However, as expected, aspiration sex-type scores for both sexes fell in the masculine range and mean sex-type

were found to differ significantly with men's scores falling further towards the more masculine pole than women's scores.

Correlations Among Variables: Self-Concept, Success Expectancy, Subjective Task Value, and Aspiration<sup>1</sup>

Self-Concept and Aspiration. The correlations among global self-concept and domain-specific discrepancy were all significant with the exception of the relationship between scholastic ability and global self-concept for males (see Table 3). The relationship between instrumentality and expressivity was significant for women but not for men. However, using the Fisher  $r$  to  $z$  transformation to compare these correlation coefficients, it was found that they do not differ significantly from each other ( $z = 1.06$ , ns). Although it was predicted that aspiration status would increase with more positive self-concept and higher instrumentality scores no significant correlations were found between aspiration status and any of the self-concept variables. As predicted, aspiration sex-type was found to correlate significantly with instrumentality for women such that women with higher instrumentality scores chose more masculine career aspirations. This relationship did not hold for men. However, using the Fisher  $r$  to  $z$  transformation to compare these correlation coefficients, it was found that they do not differ significantly from each other ( $z = -.98$ , ns). Although it was predicted that career aspirations would become more feminine as expressivity score increased no significant relationship was found between aspiration sex-type and expressivity in males or females.

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<sup>1</sup> Because previous research has found that women's self-esteem decreases during the university years (Arnold, 1993a), correlations were run with number of semesters completed partialled out. Overall findings were not altered. Therefore these analyses have not been included.

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Insert Table 3 about here

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Self-concept and success expectancy. The relationships between self-concept and success expectancy differ substantially between men and women. Although it was predicted that success expectancies would correspond to more positive self-concept and higher instrumentality scores, none of the self-concept variables were significantly correlated with success expectancy for women. However, all variables except job competence discrepancy and expressivity were significantly related to success expectancy for men. Thus, for men expectations for success increased as global self-concept increased, and discrepancies became increasingly facilitory to self-esteem in the domains of scholastic ability, intellectual ability, and social acceptance. Expectations for success also increased as instrumentality scores increased. Although the correlation between success expectancy and social acceptance was not significant for women, it is notable in that the direction of the relationship was in the opposite direction to that predicted. Thus, for women, expectations of success showed a tendency to increase as the social acceptance discrepancy became more detrimental to self-esteem. A posthoc gender comparison of the correlation between success expectancy and social acceptance discrepancy was done. Using the Fisher  $r$  to  $z$  transformation to compare correlation coefficients, it was found that the relationship between these variables was significantly different ( $z = -2.66, p < .01$ ) for men and women.

Self-concept and subjective task value. Predictions concerning relationships between self-concept and subjective task value were generally not supported. In women, only expressivity was significantly related to subjective task value, with subjective task value increasing as expressivity increased. In men, subjective task value was significantly related to global self-concept, instrumentality and expressivity. In each of these cases subjective task value went up as each of these variables increased. Posthoc comparisons of the correlations among subjective task value and

the self-concept variables, using the Fisher  $r$  to  $z$  transformation to compare correlation coefficients, yielded no significant gender differences in these relationships.

Aspiration and Success Expectancy. No specific hypotheses concerning the relationships among aspiration status, aspiration sex-type and success expectancy were proposed. It was found, however, that success expectancy was significantly related to both aspiration status and aspiration sex-type for women; as expectations for success decreased aspiration status increased and aspiration sex-type became more feminine. Success expectancy was also significantly related to aspiration status for men in the same way as for women. Success expectancy was not related to aspiration sex-type among men. A posthoc comparison of the correlation between success expectancy and aspiration sex-type for each sex, using the Fisher  $r$  to  $z$  transformation to compare correlation coefficients, suggests that the relationship between these variables is significantly different for men and women ( $z = -3.30, p < .001$ ).

Aspiration and Subjective Task Value. No specific predictions regarding the relationships among subjective task value and the career aspiration variables were proposed. Subjective task value was not significantly related to career aspirations among men but it was significantly related to aspiration sex-type among women, with subjective task value increasing as aspiration sex-type became more feminine. A posthoc comparison of the correlation between subjective task value and career aspiration sex-type for each sex did not yield any significant differences between men and women.

Although the presence of a significant correlation between success expectancy and subjective task value was not predicted, a significant correlation between these variables was found. The relationship appeared to be similar for men and women, with expectations for success increasing as subjective task value increased.

The statistically significant relationship found between aspiration status and aspiration sex-type for women was not predicted. This relationship did not hold for men although the

direction of the relationship was the same. In both cases career aspiration sex-type became more masculine as career status increased. The correlations between aspiration status and aspiration sex-type did not differ significantly between men and women.

### Testing for Mediation

The presence of success expectancies and subjective task value as mediators was tested using the procedure suggested by Baron and Kenny (1986). They recommended that in testing a mediational model, three separate multiple regressions be run. In the first step the proposed mediator is regressed on to the predictor (independent) variables. In the second step the criterion (dependent) variables are regressed onto the predictor variables. In the third step the criterion (dependent) variables are regressed onto the mediator and predictor variables.

To provide support for a mediational model, the proposed mediator must be related to the predictor variables in the first step and the dependent variable must be related to the predictor variables in the second step. In the third step, when the proposed mediator is added in with the predictor variables, the contribution of the predictor variables should be substantially lower. In the case of pure mediation the predictor variables should no longer be related to the dependent variable at the third step. All tests of the mediational hypotheses were run controlling for GPA because of the gender difference found on this variable<sup>2</sup>. GPA was not found to predict a significant portion of the variance in career aspiration.

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<sup>2</sup> Using GPA reduced the sample sizes to 96 and 107 for males and females respectively. With this change it is possible that power was no longer sufficient to detect medium effect sizes. To check this possibility regressions were repeated without including GPA. There were no new significant predictors. Therefore, the original regressions are presented.

Success expectancy as a mediator of the relationship between self-concept and the socio-economic status of career aspirations. A careful examination of the relationships among predictor, mediator, and dependent variables indicates that self-concept variables are unrelated to aspiration status for both men and women (see Table 3). This suggests that regression analyses are unlikely to find evidence supporting the role of success expectancy as a mediator of aspiration status for either men or women. The regression analyses confirmed this observation as they failed to demonstrate that variables relating to success expectancy in step one are related to aspiration status in step two. These findings were the same for women (see Tables 4 and 5) and men (see Tables 6 and 7). Success expectancy was found, however, to predict a significant amount of the variance in aspiration status for women but not for men.

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Insert Tables 4 through 7 about here

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Subjective task value as a mediator of the relationship between self-concept and the socio-economic status of career aspirations. The regression analyses failed to provide support for the proposed mediational model in which subjective task value acts as a mediator of a relationship between self-concept and career aspiration status. These results were the same for women (see Tables 8 and 9) and men (see Tables 10 and 11).

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Insert Tables 8 through 11 about here

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Success expectancy as a mediator of the relationship between self-concept and career aspiration sex-type. The regression analyses failed to provide support for the proposed mediational model in which success expectancy acts as a mediator of a relationship between self-concept and aspiration sex-type. These results were the same for women (see Tables 4 and 12) and men (see Tables 7 and 13). Success expectancy was found, however, to predict a significant amount of the variance in career aspiration sex-type for women (see Table 12) but not men. A comparison

between men and women of the unstandardized beta weight for success expectancy indicated that the contribution of success expectancy to aspiration sex-type was significantly different for men and women ( $t = -3.04, p < .001$ ).

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Insert Tables 12 and 13 about here

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Subjective task value as a mediator of the relationship between self-concept and career aspiration status. The regression analyses failed to provide support for a mediational model in which subjective task value acts as a mediator of a relationship between self-concept and aspiration sex-type. These results were found for women (see Tables 8 and 14) and men (see Tables 10 and 15). Subjective task value was, however, found to predict a significant amount of the variance in aspiration status for women (see Table 14) but not men.

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Insert Tables 14 and 15 about here

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Analyses based on the hypotheses about career aspirations in relation to occupational sex stereotypes yielded the following results.

Correlations Between Variables: Occupation Sex-Stereotype, Success Expectancy, Subjective Task Value, and Aspiration

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Insert Table 16 about here

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Although no specific predictions were made regarding the relationship between sex-stereotypic ratings of occupations, ratings of femininity were found to be significantly correlated with ratings of masculinity for men and women. In order to test hypotheses about gender differences in sex stereotyping, aspirations were grouped into masculine and feminine sex-stereotypes using a neutral sex-type cut-off score of 4. Gender comparisons of sex-stereotype ratings were then made for masculine sex-type aspirations and feminine sex-type aspirations. It



was predicted that men would rate occupations more stereotypically than women by endorsing more masculine items for male sex-typed occupations and more feminine items for female sex-typed occupations. These hypotheses concerning gender differences in sex stereotypes of occupations were not confirmed.

Success expectancy and occupation sex-stereotypes. Although it was predicted that increased success expectancy would correspond to increased feminine stereotyping of occupations and decreased masculine stereotyping of occupations for women, these relationships were not found. Success expectancy was not related to masculine stereotyping or feminine stereotyping for men or women.

Subjective task value and occupation sex-stereotypes. As predicted, subjective task value was significantly related to feminine stereotyping in women. The direction of the relationship was, however opposite to that predicted, with subjective task value increasing as the number of feminine stereotype items increased. The predicted relationship between subjective task value and masculine stereotyping by women was not found. As expected, subjective task value was significantly related to occupational sex stereotyping by men. The relationship between subjective task value and the number of sex-stereotypic items endorsed was in the expected direction for masculine items but opposite to that predicted for feminine items. In both cases the number of items endorsed increased as subjective task value increased. Posthoc comparisons of these relationships did not reveal any significant gender differences.

Aspiration status and occupation sex-stereotypes. Contrary to hypotheses about the relationships among career aspiration socio-economic status and occupation sex-stereotypes these variables were not found to be significantly related. This was the same for men and women.

Aspiration sex-type and occupation sex-stereotypes. For women, masculinity ratings and femininity rating were both found to be significantly related to career aspiration sex-type as predicted. The number of masculine items increased as the aspiration sex-type became more

masculine and the number of feminine items increased as the aspiration sex-type became more feminine. As expected, masculinity ratings were also significantly related to aspiration sex-type for men. However, the prediction that femininity ratings would also be related to aspiration sex-type for men was not supported. A posthoc comparison of the correlation between femininity ratings and aspiration sex-type, using the Fisher  $r$  to  $z$  transformation to compare correlation coefficients, indicated that the relationship between these variables differs significantly between men and women ( $z = 2.62, p < .01$ ).

### Tests of Mediation<sup>3</sup>

Success expectancy as a mediator of the relationship between occupation sex-stereotypes and the socio-economic status of career aspirations. The results of the multiple regressions did not support the proposed mediational model in which success expectancy was expected to act as a mediator of the relationship between occupation sex-stereotypes and aspiration status (see Tables 17 and 18). Ratings of masculinity were found, however, to predict a significant amount of the variance in success expectancy for women but not for men (see Table 17). Success expectancy was found to contribute significantly to the prediction of career aspiration status for men and women.

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Insert Tables 17 and 18 about here

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Subjective task value as a mediator of the relationship between occupation sex-stereotypes and the socio-economic status of career aspirations. The results of the multiple regressions did not support the proposed mediational model in which subjective task value was expected to act as a mediator of the relationship between occupation sex-stereotypes and aspiration status (see Tables

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<sup>3</sup> The regression equations performed to test for mediation did not include GPA as a covariate as GPA had had no impact on the regressions run in the examination of self-concept variables.

19 and 20). However, the feminine stereotype was found to contribute significantly to the prediction of subjective task value for men but not women.

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Insert Table 19 and 20 about here

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Success expectancy as a mediator of the relationship between occupation sex-stereotypes and career aspiration sex-type. The results of the multiple regressions did not support the proposed mediational model in which success expectancy was expected to act as a mediator of the relationship between occupation sex-stereotypes and aspiration sex-type (see Tables 17 and 21).

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Insert Table 21 about here

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For women, the masculine stereotype was related to both success expectancy and the sex-type of the career aspiration. However, when success expectancy was accounted for in the multiple regression the contribution made by the masculine stereotype to aspiration sex-type did not change substantially (see Table 21) as would be the case required to support mediation.

For women, both sex-stereotypes contributed significantly to the prediction of aspiration sex-type, together accounting for 32 % ( $p < .001$ ) of the variance. For men, 12% ( $p < .001$ ) of the variance was accounted for by the sex-stereotypes. A comparison of the unstandardized beta weight for the contribution of the feminine stereotype to aspiration sex-type yielded a significant difference between men and women ( $t = 3.44, p < .001$ ). The contribution of the feminine stereotype to aspiration sex-type was greater for women than for men. A comparison of the regression equations in which occupational sex-stereotypes were used to predict aspiration sex-type indicated that these equations they were significantly different for men and women ( $F_{(2,117)} = 15.34, p < .001$ ).

Success expectancy also contributed significantly to the prediction of aspiration sex-type for women but not for men. A comparison of the multiple regression equations predicting

aspiration sex-type from success expectancy and both occupational sex stereotypes indicated that these equations were significantly different for men and women ( $F_{(3,117)} = 11.90, p < .001$ ). For women, a total of 38% of the variance in sex-type was accounted for by success expectancy and both occupational sex stereotypes. For men, only 12% of the variance was accounted for by these variables.

Subjective task value as a mediator of the relationship between occupation sex-stereotypes and career aspiration sex-type. The results of the multiple regressions did not support the proposed mediational model in which subjective task value was expected to act as a mediator of the relationship between occupation sex-stereotypes and aspiration sex-type (see Tables 20 and 22). However, in men the feminine stereotype contributed to subjective task value and career sex-type. When subjective task value was accounted for the contribution to sex-type made by femininity did not change substantially and subjective task value did not contribute to aspiration sex-type as would be the case needed to support a mediational model (see Table 22).

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Insert Table 22 about here

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Subjective task value also contributed significantly to the prediction of aspiration sex-type for women. Neither the feminine stereotype nor the masculine stereotype contributed to subjective task value in women, although both contributed to the prediction of aspiration sex-type as noted earlier. A comparison of the regression equations including subjective task value and both occupational sex-stereotypes indicates that they are significantly different for men and women ( $F_{(3,117)} = 10.96, p < .001$ ). A total of 36% of the variance in sex-type was accounted for by this set of variables for women and a total of 12% of the variance for men.

### Discussion

This examination of gender differences in aspiration represented an initial investigation of the relationships among a set of self-system and career aspiration features in a sample of university

men and women. Variables of the self-system examined in this study included global and domain-specific self-concept and gender-typed self-attributes. Occupation sex-stereotypes, representing perceptions held by the self about others, were also included as a feature of the self-system. The features of career aspirations examined were occupation status and sex-type. This study also represented one of the first investigations of the role of success expectancy and subjective task value as mediators of these relationships, as suggested by Eccles' model (1987) of achievement-related choices.

Comparisons between men and women on the variables used in this study replicated several findings from previous research. The women in this study tended to receive higher grades than men, as has been found previously (Lenney, 1977). This finding in this study must be interpreted with caution as GPA scores were obtained through self-reports of cumulative GPA and are subject to a reporting bias, although previous work would suggest that men would tend to inflate their reported GPA while women would tend to deflate their self-reported GPA (Streit & Tanguay, 1994). Also replicating earlier work (Neeman & Harter, 1986), is the finding that men and women did not differ in global self-concept.

The differences in domain-specific discrepancies are more difficult to interpret because these scores have not been used in this way before. The decision to use the importance-competence discrepancy scores for all subjects was based on the idea that if positive discrepancies are detrimental to overall self-esteem, as proposed by Harter (Neeman & Harter, 1986), negative discrepancies may be facilitory of self-esteem. Since all individual are likely to work at some point in their lifetime it also seemed quite possible that even for individuals who did not place a high importance on the scholastic or job competence domains, the importance-competence discrepancy might influence their choice of occupations. It was also predicted that there would be differences between men and women in domain-specific discrepancies. Thus, it was judged that the use of domain-specific discrepancies, both positive and negative, might be more revealing of the nature of

the relationships among gender, self-concept and career aspirations. It is interesting that there were such clear gender differences in the discrepancies between competence and importance in the scholastic competence, intellectual competence, and social acceptance domains. In all three of these domains the discrepancy between competence and importance was much larger for women than for men. It is also interesting that all of the discrepancy scores, except in the intellectual domain for males, are positive. This may be the result of the highly competitive nature of the university environment. So, although men and women rate themselves as competent they also place high levels of importance on these domains. It is interesting that the intellectual domain discrepancy was negative for males given that, according to their self-reported GPAs, they are not performing as well women. It is possible that men do not place as much importance on this domain as women do, and therefore men's competence ratings continue to exceed their importance ratings.

The gender difference in importance-competence discrepancy in the social acceptance domain is particularly interesting in regard to the gender difference in how this domain relates to success expectancy. Although the correlation between social acceptance discrepancy and success expectancy was significant for men in the expected direction, it was not significant for women. There was, however, a tendency for women to have lower success expectancies when their social acceptance discrepancy score was more negative, which should indicate a facilitory impact on self-esteem. It is possible that as women's social acceptance competence scores increase, thereby leading to a situation that should facilitate self esteem their expectancies for success decrease as they find it harder to see themselves engaging in activities that may jeopardise that self-concept, particularly if they have more stereotypic sex-role beliefs.

The gender differences found on gender-typed self attributes were as expected, with women obtaining higher expressivity scores and men obtaining higher instrumentality scores. The finding that men selected more masculine sex-typed occupations on average than women is also in line with what might be expected. The fact that women also selected occupations that, on average,

were on the masculine side of the neutral occupation sex-type, was expected for this population. The hypothesis that there would be gender differences on success expectancy and subjective task value were not supported. It is possible that the subjects in this sample were all highly motivated and highly competitive. University students are a highly selected group to begin with and therefore most of these students may have similar types of expectations and similar values regarding occupational choices, regardless of gender. Because of the restricted representativeness of this sample it is not possible to determine whether those individuals who choose to attend university. The similarity in the findings for men and women in this sample does, however, suggest that

The correlational findings are somewhat more complex and more difficult to interpret. The absence of relationships between the aspiration variables and the self-system variables, with the exception of the significant relationship between instrumentality and aspiration sex-type, is quite striking. It is possible that the non-significant relationships between self-system and aspiration variables is a function of the career aspirations being individually determined. It may be that there is a substantial degree of circularity in having students choose an occupation and then compare this selection to features of their self-concept. In selecting a career, based on the assumptions of the model, individuals may have already matched their perceived abilities with what they see as the most viable option. Although Super and his colleagues (Jordaan, 1963, Starishevsky & Matlin, 1963; Super 1963a) suggest that the self-concept becomes translated into career choices in late adolescence and early adulthood, it is possible that the relationship between perceptions of the self- and perceptions of possible and acceptable occupations has balanced out long before this developmental stage is entered. Thus, the aspiration itself may not be as important as the steps an individual takes to achieve that goal.

One of the most interesting findings was that, for women, as their aspiration sex-type became more masculine their expectancy for success decreased. Since the measure used to rate career aspiration sex-type was a bipolar scale that placed highly masculine occupations at one

pole, gender neutral occupations at the centre of the scale and highly feminine occupations at the other pole this finding may be viewed another way. Specifically, women's success expectancies appeared to become more hopeful when their aspirations were in the feminine range of the scale than when they were in the masculine range of the scale. Although the relationship between success expectancy and aspiration sex-type was not significant for males, there was a tendency for men to indicate that they had decreased expectancies for success as their aspiration sex-type became more feminine. Again this suggested a tendency for men to indicate increased expectancies for success when they chose more stereotypically male career aspirations. Women also placed increased value on career aspirations that were more feminine but men did not place increased value on the more stereotypically masculine career aspirations. These findings suggest that both sexes may adhere to sex-role stereotypes when thinking about occupations but in different arenas.

The results of the tests of the mediational paths did not support the hypothesized roles of success expectancy and subjective task value as mediators of the relationship between self-concept and aspiration. However, for women, success expectancy and subjective task value predicted a significant amount of the variance in aspiration sex-type while only success expectancy contributed significantly to the prediction of aspiration status. These findings from the multiple regression analyses suggest that the relationships among success expectancy, subjective task value, aspiration sex-type and aspiration status supported by correlational findings do not have simple causal relationships. It is also possible that the failure of the present study to establish the role of success expectancy and subjective task value as mediators is a result of using self-system variables as predictors when also using a self-defined outcome variable. It is possible that a clearer understanding of the roles of success expectancy and subjective task value would be gained by having individuals evaluate a specific career option.

The investigation of occupation sex-stereotypes revealed additional interesting results. Aspiration status was not predicted by occupation sex-stereotypes but it was predicted by success



expectancy in women, as noted above. Success expectancy, in turn, was predicted by the masculine stereotype of the career aspiration. Thus, aspiration status can be partially predicted by success expectancy, which in turn can be partially predicted by the masculine stereotype. So, it may be that the masculine stereotype contributes only a very small amount to success expectancy which in turn only contributes a very small, though significant, amount to aspiration status. At this point the contribution of the stereotype to aspiration status may be negligible. Such a small effect size would require a considerably larger sample to establish a direct link between success expectancy and aspiration status.

The results of the tests of the mediational paths leading to aspiration sex-typing suggest that the relationships among the sex-stereotypes and aspiration sex-type are stronger than the relationships among the self-concept variables and career aspiration. The contribution of masculine and feminine stereotypes about occupations to aspiration sex-type was significant for both men and women, accounting for 12% and 32 % of the variance respectively. The inclusion of the proposed mediators, however, did not alter the contribution of the sex-stereotypes to aspiration sex-type, therefore suggesting that success expectancy and subjective task value do not act as mediators of aspiration sex-type. It is possible that they are acting as moderators, influencing the degree or direction of the relationship. It is also possible that they are not hierarchically positioned as proposed in the model. Alternatively, they may stand as predictors at the same causal level as the sex-stereotype variables.

The finding that the slopes of several of the significant regression lines differ significantly between men and women is also very interesting. This finding suggests that there is not simple a main effect for gender but that gender interacts with one or more of the predictor variables to alter the trajectory (slope) of the regression line. One of the interesting implications of this study is that in spite of substantial changes in opportunity and affirmative action, sex-stereotypes appear to continue to play a prominent role in the career aspirations of university men and women.

There are several limitations to this study which must be emphasized. The first limitation is the nature of the population which was sampled. As mentioned previously, university students are a highly selected group, this severely constrains the generalizability of these findings. Additionally, all but four of the students were taking or had previously taken psychology courses and a substantial number of the students indicated they were psychology majors. Therefore, it would be premature to extend the interpretations of the results of this study to university students in general.

A second limitation has also been previously mentioned, the fact that career aspirations were self-selected. This presents a problem for testing the contribution of cognitive and psychological factors to achievement-related choices. Given that the career choice has already been made and the individual has chosen to attend university to facilitate achieving this goal, it is very likely that the components of the system have already come into balance. It may be preferable to investigate how students come to choose one career from a small set of career options. It is also possible that the concept of career aspiration represents a choice that is too distal, temporally, for many students. Thus, student's career aspirations may be a function of idealism rather than a representation of a possible ideal-self that may be attainable. It is also very possible that students are interested in and focused on more immediate achievement-related goals such as completing courses currently enrolled in or completing degree requirements.

A third limitation to the study was the measure developed for the study and used to assess success expectancy and subjective task value. The items generated for this survey were based on Eccles' (1987) and Kaufman and Richardson's (1982) descriptions of these constructs. While some degree of face validity was contained within the measure and the obtained coefficient alphas were adequate for scales of seven items, there is insufficient information in the present study to determine the psychometric soundness of the measure. So, while the items hold together to some degree, other types of reliability and validity are unknown. Also, as noted earlier, Eccles (1987;

Wigfield & Eccles, 1992) suggests that subjective task value is composed of four dimensions. They also provide some evidence that suggests each dimension may relate in different ways to different achievement-related choices. Therefore it is quite possible that using a composite measure of subjective task value obscured the individual contribution that might have been made by the four postulated dimensions of subjective task value. This in turn may have also obscured any possible gender differences in this construct.

A fourth limitation to the study is the lack of power required to detect small effect sizes. The number of subjects used in the study was based on the minimum required to ensure enough power to detect medium effect sizes at an alpha of .05. This level of power was particularly problematic in the comparisons of correlations for men and women. Only a small number of the possible differences between correlations were determined to be significant. According to Cohen (1992, p.159) the minimum group size necessary to find a medium effect size with an alpha of .05 when comparing correlation coefficients is 177. This recommended sample size was not obtained in this study. Therefore the differences that were found are statistically robust. This study, however had insufficient power to determine whether non-significant findings are the result of true similarity between men and women or a lack of power.

A final limitation of the study that must be taken into account is the possibility of priming or ordering effects that may have occurred since all packets presented the questionnaires in the same order. Since subjects were asked to list their occupational interests before they completed that other questionnaires, it is possible that students were primed to respond on the self-concept measures in a way that was consistent with their occupational choices. This possibility is consistent with the idea of circularity that was raised above.

The results of the present study suggest a number of avenues for future research. Firstly, the issue of circularity must be addressed. One alternative to address the idea that self-selected aspirations are already in balance in the self-system may be to use pre-selected occupations that

represent highly masculine sex-typed, highly feminine sex-typed and gender neutral occupations. A second alternative may be to use a sample which is not as highly self-selected for academic achievement. Secondly, further work needs to be done developing a psychometrically sound measure of the success expectancy and subjective task value constructs. Thirdly, a more representative sample including students from a wide variety of disciplines and different educational contexts (vocational, technical, college, university, etc.) would be instrumental in expanding the applicability of these findings.

The findings of this study, which suggest occupational sex-stereotypes continue to be important to university students, has important implications for impacting on the current social contexts in which occupational choices develop. The pervasiveness and strength of sex-stereotypes in the larger society may prohibit individuals from aspiring to careers that they feel are incompatible with cultural gender-role expectations. This may promote the predominance of one sex or the other in any given occupation. This in turn will act to perpetuate the sex-typing of occupations which then reaffirms the original occupational sex-stereotype. Therefore, in order to break this cycle it may be critical to address the formation of occupational sex-stereotypes in early school age children when an orientation to sex-roles is highly influential in the development of self-concept. To encourage men and women to pursue occupations for which they are best suited as a function of personal attributes and abilities, rather than biological sex, it seems crucial and necessary to address the nature of the environmental and social contexts in which the socialization of career choices takes place. Women in particular may need additional encouragement pursue the higher levels of achievement in the traditionally male-dominated occupations. One route to accomplish this would be through programs aimed at addressing and altering elementary and high-school girl's perceptions of the attractiveness and feasibility of the traditionally male, high status professions. Thus, many more of the highly capable women may not only come to see themselves

as capable of working in these fields but also to see these professions as attractive and feasible options.

It is important to recognize, however, that the limitations that women face in entering the traditionally male-dominated professions are not restricted to women's beliefs and perceptions. While barriers to obtaining higher education have been lowered, women continue to face very real barriers in the professional communities. Women are faced with more obstacles to advancing through a profession than men are, even after they have garnered a position as a junior colleague. Women are often required to work for a longer period of time, acquire more experience, or be more productive than their male counterparts before they are able to advance. In addition, women are faced with the very real necessity of balancing demands on their time if they decide to bare and raise children. The majority of work-places continue to promote the use of time-use guidelines that do not allow for the flexibility required to raise a young family. This situation is, of course, also limiting for fathers but not to the degree that it is for mothers.

In conclusion, the findings of this study represent an interesting and informative look at career aspiration in university students using Eccles' model of achievement-related choices. This study has given some hints as to the relationships between self-system variables, occupational sex-stereotypes, and career aspirations in a university sample. Perhaps more importantly, this study provides some indication of the difficulties that are faced in encouraging men and women to venture into the occupational domains that have traditionally been associated with the other sex.

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Appendix

CAREER EXPECTATIONS AND VALUES SURVEY

The following questions ask about some expectations and values that people hold for their careers. In answering the following questions I would like you to answer based on how you feel **right now** when thinking about the career that you are most interested in. Please write the name of the career that you listed as the one you are most interested in here \_\_\_\_\_.

1. How competitive do you think it is to obtain the requirements for this career?

Not at all competitive 1 2 3 4 5 6 7 Very competitive

2. How hard do you think it will be for you to complete the requirements for this career?

Not at all hard 1 2 3 4 5 6 7 Very hard

3. How competitive do you think it is to obtain a position in this field?

Not at all competitive 1 2 3 4 5 6 7 Very competitive

4. How easy do you think it will be for you to obtain a position in this field?

Not at all easy 1 2 3 4 5 6 7 Very easy

5. How high would you rate your ability to work competently in this occupation?

Not very able 1 2 3 4 5 6 7 Very able

6. How much effort do you expect it will take for you to be successful in this occupation?

Not very much effort 1 2 3 4 5 6 7 A lot of effort

7. How successful do you think you will be in achieving this career goal?

Not very successful 1 2 3 4 5 6 7 Very successful

8. How important is this particular occupation to you as an individual?

Not very important 1 2 3 4 5 6 7 Very important

9. How rewarding do you think this occupation will be to you as an individual?

Not very rewarding	1	2	3	4	5	6	7	Very rewarding
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10. How important is it to you that this occupation provide an opportunity for self-expression?

Not very important	1	2	3	4	5	6	7	Very important
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11. How much personal satisfaction and enjoyment do you think this career will provide?

Not very much satisfaction	1	2	3	4	5	6	7	A lot of satisfaction
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12. How important to you is it that this career contributes to society as well as to your livelihood?

Not very important	1	2	3	4	5	6	7	Very important
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13. How much do you think you will have to give up in other areas of your life to obtain and maintain a position in this field?

Not give up a lot	1	2	3	4	5	6	7	Give up a lot
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14. How much conflict do you expect there will be between your career and other life goals?

Not very much conflict	1	2	3	4	5	6	7	A lot of conflict
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Table 1

Comparison of Male and Female University Students on Demographic Variables

	Males		Females		F Value
	Mean	SD	Mean	SD	
Age <sup>a, b</sup>	21.38	3.52	22.12	4.87	.92
Semesters completed <sup>c, d</sup>	4.70	3.19	4.92	3.11	.12
Mother's education level <sup>c, b</sup>	3.18	1.89	3.18	1.76	.00
Father's education level <sup>c, b</sup>	3.94	2.43	3.81	2.34	1.15
Grade Point Average <sup>e, f</sup>	2.84	.44	3.03	.52	7.03 **

	Males		Females		Total	
	n	(%)	n	(%)	n	(%)
<b>Ethnicity</b>						
Caucasian	75	(69.4%)	69	(59%)	144	(64.0%)
Asian	28	(25.9%)	31	(26.5%)	59	(26.2%)
Other	2	(1.9%)	9	(7.7%)	11	(4.9%)
Not Specified	3	(2.8%)	8	(6.8%)	11	(4.9%)
Total	108	(48.0%)	117	(52.0%)	225	(100%)

<sup>a</sup> n<sub>(male)</sub>=108<sup>b</sup> n<sub>(female)</sub>=117<sup>c</sup> n<sub>(male)</sub>=107<sup>d</sup> n<sub>(female)</sub>=115<sup>e</sup> n<sub>(male)</sub>=96<sup>f</sup> n<sub>(female)</sub>=107    \*\*p ≤ .01

Table 2

Comparison of Male and Female University Students on Self-Concept, Occupation Sex-Stereotype, Mediator and Career Aspiration Variables

Variable	Males		Females		F Value	
	Mean	SD	Mean	SD		
<b>Self-Concept</b>						
Global Self-worth <sup>a</sup>	3.11	.64	3.05	.61	.44	
Job Discrepancy <sup>a</sup>	.37	.65	.56	.76	2.34	
Scholastic Discrepancy <sup>a</sup>	.46	.86	.82	.74	8.81	***
Intellectual Discrepancy <sup>a</sup>	-.09	.81	.40	.79	21.15	***
Social Acceptance Discrepancy <sup>a</sup>	.01	.95	.33	1.02	5.34	*
Instrumentality <sup>b</sup>	30.26	5.20	27.74	4.97	14.16	***
Expressivity <sup>b</sup>	31.13	4.41	32.75	3.72	7.78	**
<b>Occupation Sex-Stereotype</b>						
Masculine <sup>b</sup>	13.85	5.48	11.50	4.70	13.75	***
Feminine <sup>b</sup>	11.91	6.93	12.25	7.01	.00	
<b>Mediator</b>						
Success Expectancy <sup>b</sup>	4.59	.65	4.55	.64	.05	
Subjective Task Value <sup>b</sup>	5.28	.70	5.43	.59	2.40	
<b>Career Aspiration</b>						
Sex-Type <sup>b</sup>	3.38	.60	3.89	.80	27.86	***
Status <sup>b</sup>	60.62	15.29	63.68	12.75	2.68	

<sup>a</sup>  $n_{(male)}=105$ ,  $n_{(female)}=114$

<sup>b</sup>  $n_{(male)}=108$ ,  $n_{(female)}=117$

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 3

Zero Order Correlations Among Variables Used in Tests of Mediators of the Relationship Between Self-Concept and Career Aspiration for University Students

VARIABLE	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
<b>Self-Concept</b>											
1. Global Self-Concept <sup>a</sup>		-.27 **	-.14	-.34 ***	-.51 ***	.55 ***	.13	-.23 *	.32 ***	-.15	.02
2. Job Competence <sup>a,b</sup>	-.33 ***		.36 ***	.32 ***	.35 ***	-.30 **	.09	.13	.06	.07	-.13
3. Scholastic Ability <sup>a,b</sup>	-.35 ***	.36 ***		.53 ***	.32 ***	-.26 **	-.11	.32 ***	-.05	-.10	.02
4. Intellectual Ability <sup>a,b</sup>	-.29 **	.36 ***	.41 ***		.41 ***	-.31 ***	-.18	.25 *	-.11	.04	.01
5. Social Acceptance <sup>a,b</sup>	-.42 ***	.21 *	.31 ***	.28 **		-.33 ***	-.21 *	.25 **	-.17	.11	.00
6. Instrumentality	.63 ***	-.28 **	-.30 ***	-.24 **	-.40 ***		.06	-.28 **	.33 ***	-.07	.05
7. Expressivity	.17	-.03	.03	.08	.08	.20 *		-.09	.28 **	-.01	.02
<b>Mediators</b>											
8. Success Expectancy	-.13	-.05	.07	.00	-.11	-.09	-.01		-.26 **	.07	.23 *
9. Subjective Task Value	.12	-.02	-.11	.02	.12	.08	.19 *	-.23 *		.10	-.05
<b>Career Aspiration</b>											
10. Sex-Type	-.07	.07	-.07	-.01	.06	-.20 *	.03	-.36 ***	.27 **		-.14
11. Status	.08	.08	-.02	.03	-.09	.03	.06	.24 **	-.03	-.23 *	

Table 3 (cont'd)

NOTE: Correlations for male subjects are positioned above the diagonal, those for females are positioned below the diagonal

<sup>a</sup> Correlations using this variable are based on sample sizes of  $n_{\text{males}} = 105$  and  $n_{\text{females}} = 114$ . Correlations not using this variable have sample sizes of  $n_{\text{males}} = 108$  and  $n_{\text{females}} = 117$ .

<sup>b</sup> Domain-specific discrepancy scores = domain importance scores - domain competence competence.

\*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\* $p \leq .001$

**Table 4**

**Summary of Hierarchical Multiple Regression Analysis of Self-Concept Variables Predicting Success Expectancy for Females (n = 107)**

	Variable	B	SE B	$\beta$
Block 2 <sup>a</sup>	GPA	-.04	.14	-.03
	Global Self-Concept	-.22	.15	-.20
	Job Competence Discrepancy	-.11	.09	-.13
	Scholastic Ability Discrepancy	.08	.11	.09
	Intellectual Ability Discrepancy	.03	.09	.03
	Social Acceptance Discrepancy	-.15	.07	-.24 *
	Instrumentality	-.01	.02	-.04
	Expressivity	.01	.02	.05

<sup>a</sup>GPA was entered alone in Block 1 ( $\text{Adj. } R^2 = -.01$ , ns) and with the predictor variables in Block 2 ( $\Delta \text{Adj. } R^2 = .00$ ; ns).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .



Table 5

Summary of Hierarchical Multiple Regression Analyses Testing Success Expectancy as a Mediator of Self-Concept Variables Predicting Career Aspiration Status for Females (n = 107)

		Variable	B	SE B	$\beta$
Step 1	Block 2 <sup>a</sup>	GPA	3.14	2.76	.13
		Global Self-Concept	2.82	2.91	.14
		Job Competence Discrepancy	2.32	1.83	.14
		Scholastic Ability Discrepancy	.62	2.17	.04
		Intellectual Ability Discrepancy	.07	1.8	.00
		Social Acceptance Discrepancy	-.82	1.43	-.07
		Instrumentality	-.04	.33	-.02
		Expressivity	.18	.36	.05
Step 2	Block 3 <sup>b</sup>	GPA	3.37	2.64	.14
		Success Expectancy	5.94	1.91	.31 **
		Global Self-Concept	4.11	2.82	.20
		Job Competence Discrepancy	2.96	1.76	.18
		Scholastic Ability Discrepancy	.14	2.09	.01
		Intellectual Ability Discrepancy	-.09	1.73	-.01
		Social Acceptance Discrepancy	.09	1.40	.01
		Instrumentality	-.01	.32	-.00
		Expressivity	.12	.34	.04

<sup>a</sup> In Step 1 GPA was entered alone in Block 1 ( $\text{Adj.}R^2 = .00$ , ns), and with the predictor variables in Block 2 ( $\Delta\text{Adj.}R^2 = -.03$ , ns).

<sup>b</sup> In Step 2 GPA was entered alone in Block 1 ( $\text{Adj.}R^2 = .00$ , ns), with Success Expectancy in Block 2 ( $\Delta\text{Adj.}R^2 = .07$ ,  $p \leq .01$ ), and with both Success Expectancy and Self-Concept Variables in Block 3 ( $\Delta\text{Adj.}R^2 = -.02$ , ns).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Table 6

Summary of Hierarchical Multiple Regression Analysis for Self-Concept Variables Predicting Success Expectancy for Males (n = 96)

	Variable	B	SE B	$\beta$
Block 2 <sup>a</sup>	GPA	.23	.16	.15
	Global Self-Concept	-.11	.14	-.10
	Job Competence Discrepancy	-.04	.12	-.03
	Scholastic Ability Discrepancy	.28	.10	.34 **
	Intellectual Ability Discrepancy	-.02	.11	-.02
	Social Acceptance Discrepancy	.04	.09	.06
	Instrumentality	-.02	.02	-.15
	Expressivity	.00	.02	.00

<sup>a</sup>GPA was entered alone in Block 1 ( $\text{Adj.}\underline{R}^2 = -.01, \text{ns}$ ) and with the predictor variables in Block 2 ( $\Delta\text{Adj.}\underline{R}^2 = .13, p = .017$ ).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Table 7

Summary of Hierarchical Multiple Regression Analyses Testing Success Expectancy as a Mediator of Self-Concept Variables Predicting Career Aspiration Status for Males (n = 96)

		Variable	B	SE B	$\beta$
Step 1	Block 2 <sup>a</sup>	GPA	6.81	4.07	.19
		Global Self-Concept	-2.03	3.42	-.08
		Job Competence Discrepancy	-3.14	2.88	-.13
		Scholastic Ability Discrepancy	3.29	2.46	.18
		Intellectual Ability Discrepancy	-.16	2.61	-.01
		Social Acceptance Discrepancy	.59	2.20	.04
		Instrumentality	-.01	.39	-.00
		Expressivity	.23	.38	.07
Step 2	Block 3 <sup>b</sup>	GPA	5.69	4.06	.16
		Success Expectancy	4.84	2.67	.21
		Global Self-Concept	-1.49	3.39	-.06
		Job Competence Discrepancy	-2.97	2.85	-.12
		Scholastic Ability Discrepancy	1.95	2.54	.10
		Intellectual Ability Discrepancy	-.08	2.58	-.00
		Social Acceptance Discrepancy	.29	2.17	.02
		Expressivity	.22	.38	.07

<sup>a</sup> In Step 1 GPA was entered alone in Block 1 ( $\text{Adj.}\underline{R}^2 = .01$ , ns), and with the predictor variables in Block 2 ( $\Delta\text{Adj.}\underline{R}^2 = -.04$ , ns).

<sup>b</sup> In Step 2 GPA was entered alone in Block 1 ( $\text{Adj.}\underline{R}^2 = .01$ , ns), with Success Expectancy in Block 2 ( $\Delta\text{Adj.}\underline{R}^2 = .05$ ,  $p = .028$ ), and with both Success Expectancy and Self-Concept Variables in Block 3 ( $\Delta\text{Adj.}\underline{R}^2 = -.05$ , ns).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Table 8

Summary of Hierarchical Multiple Regression Analyses of Self-Concept Variables Predicting Subjective Task Value for Females (n = 107)

	Variable	B	SE B	$\beta$
Block 2 <sup>a</sup>	GPA	.07	.13	.06
	Global Self-Concept	.22	.13	.22
	Job Competence Discrepancy	.04	.08	.05
	Scholastic Ability Discrepancy	-.12	.10	-.15
	Intellectual Ability Discrepancy	.01	.08	.02
	Social Acceptance Discrepancy	.13	.07	.24 *
	Instrumentality	.00	.02	.01
	Expressivity	.03	.01	.16

<sup>a</sup>GPA was entered alone in Block 1 ( $\text{Adj.}\underline{R}^2 = -.01, \underline{\text{ns}}$ ) and with the predictor variables in Block 2 ( $\Delta\text{Adj.}\underline{R}^2 = .06, \underline{\text{ns}}$ ).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Table 9

Summary of Hierarchical Multiple Regression Analyses Testing Subjective Task Value as a Mediator of Self-Concept Variables Predicting Career Aspiration Status for Females (n = 107)

		Variable	B	SE B	$\beta$
Step 1	Block 2 <sup>a</sup>	GPA	3.14	2.76	.13
		Global Self-Concept	2.82	2.91	.14
		Job Competence Discrepancy	2.32	1.83	.14
		Scholastic Ability Discrepancy	.62	2.17	.04
		Intellectual Ability Discrepancy	.07	1.80	.00
		Social Acceptance Discrepancy	-.82	1.43	-.07
		Instrumentality	-.04	.33	-.02
		Expressivity	.18	.36	.05
Step 2	Block 3 <sup>b</sup>	GPA	3.27	2.76	.14
		Subjective Task Value	-2.01	2.23	-.10
		Global Self-Concept	3.27	2.96	.16
		Job Competence Discrepancy	2.39	1.83	.15
		Scholastic Ability Discrepancy	.37	2.19	.02
		Intellectual Ability Discrepancy	.09	1.80	.01
		Social Acceptance Discrepancy	-.55	1.47	-.05
		Expressivity	.23	.36	.07

<sup>a</sup> In Step 1 GPA was entered alone in Block 1 ( $\text{Adj.}R^2 = .00$ , ns), and with the predictor variables in Block 2 ( $\Delta\text{Adj.}R^2 = -.03$ , ns).

<sup>b</sup> In Step 2 GPA was entered alone in Block 1 ( $\text{Adj.}R^2 = .00$ , ns), with Subjective Task Value in Block 2 ( $\Delta\text{Adj.}R^2 = -.01$ , ns), and with both Subjective Task Value and Self-Concept Variables in Block 3 ( $\Delta\text{Adj.}R^2 = -.02$ , ns).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Table 10

Summary of Hierarchical Multiple Regression Analyses of Self-Concept Variables Predicting Subjective Task Value for Males (n = 96)

	Variable	<u>B</u>	<u>SE B</u>	$\beta$
Block 2 <sup>a</sup>	GPA	.04	.16	.02
	Global Self-Concept	.29	.14	.26 *
	Job Competence Discrepancy	.17	.12	.15
	Scholastic Ability Discrepancy	.02	.10	.02
	Intellectual Ability Discrepancy	-.03	.10	-.03
	Social Acceptance Discrepancy	.04	.09	.05
	Instrumentality	.04	.02	.27 *
	Expressivity	.04	.02	.25 *

<sup>a</sup>GPA was entered alone in Block 1 ( $\text{Adj.}\underline{R}^2 = -.01, \underline{ns}$ ) and with the predictor variables in Block 2 ( $\Delta\text{Adj.}\underline{R}^2 = .21, \underline{p} = .000$ ).

\* $\underline{p} \leq .05$ , \*\* $\underline{p} \leq .01$ , \*\*\* $\underline{p} \leq .001$ .

Table 11

Summary of Hierarchical Multiple Regression Analyses Testing Subjective Task Value as a Mediator of Self-Concept Variables Predicting Career Aspiration Status for Males (n = 96)

		Variable	B	SE B	$\beta$
Step 1	Block 2 <sup>a</sup>	GPA	6.81	4.07	.19
		Global Self-Concept	-2.03	3.42	-.08
		Job Competence Discrepancy	-3.14	2.89	-.13
		Scholastic Ability Discrepancy	3.29	2.46	.18
		Intellectual Ability Discrepancy	-.15	2.61	-.01
		Social Acceptance Discrepancy	.59	2.20	.04
		Instrumentality	-.01	.39	-.00
		Expressivity	.23	.38	.07
Step 2	Block 3 <sup>b</sup>	GPA	6.80	4.09	.19
		Subjective Task Value	.24	2.73	.01
		Global Self-Concept	-2.09	3.53	-.09
		Job Competence Discrepancy	-3.19	2.94	-.13
		Scholastic Ability Discrepancy	3.28	2.48	.18
		Intellectual Ability Discrepancy	-.15	2.63	-.01
		Social Acceptance Discrepancy	.58	2.22	.04
		Instrumentality	-.01	.40	-.00
		Expressivity	.22	.40	.06

<sup>a</sup> In Step 1 GPA was entered alone in Block 1 ( $\text{Adj.}\underline{R}^2 = .01$ , ns), and with the predictor variables in Block 2 ( $\Delta\text{Adj.}\underline{R}^2 = -.04$ , ns).

<sup>b</sup> In Step 2 GPA was entered alone in Block 1 ( $\text{Adj.}\underline{R}^2 = .01$ , ns), with Subjective Task Value in Block 2 ( $\Delta\text{Adj.}\underline{R}^2 = -.01$ , ns), and with both Subjective Task Value and Self-Concept Variables in Block 3 ( $\Delta\text{Adj.}\underline{R}^2 = -.03$ , ns).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Table 12

Summary of Hierarchical Multiple Regression Analyses Testing Success Expectancy as a Mediator of Self-Concept Variables Predicting Career Aspiration Sex-Type for Females (n = 107)

		Variable	B	SE B	$\beta$
Step 1	Block 2 <sup>a</sup>	GPA	.01	.17	.01
		Global Self-Concept	.04	.18	.03
		Job Competence Discrepancy	.10	.11	.10
		Scholastic Ability Discrepancy	-.10	.13	-.09
		Intellectual Ability Discrepancy	-.09	.11	-.09
		Social Acceptance Discrepancy	-.01	.09	-.01
		Instrumentality	-.05	.02	-.30 *
		Expressivity	.01	.02	.07
Step 2	Block 3 <sup>b</sup>	GPA	-.00	.16	-.00
		Success Expectancy	-.43	.12	-.35 ***
		Global Self-Concept	.05	.17	-.04
		Job Competence Discrepancy	.06	.11	.06
		Scholastic Ability Discrepancy	-.06	.17	-.06
		Intellectual Ability Discrepancy	-.08	.10	-.08
		Social Acceptance Discrepancy	-.07	.08	-.10
		Instrumentality	-.05	.02	-.31 *
Expressivity	.02	.02	.09		

<sup>a</sup> In Step 1 GPA was entered alone in Block 1 ( $\text{Adj.}\underline{R}^2 = -.01$ , ns), and with the predictor variables in Block 2 ( $\Delta\text{Adj.}\underline{R}^2 = .01$ , ns).

<sup>b</sup> In Step 2 GPA was entered alone in Block 1 ( $\text{Adj.}\underline{R}^2 = -.01$ , ns), with Success Expectancy in Block 2 ( $\Delta\text{Adj.}\underline{R}^2 = .10$ ,  $p \leq .01$ ), and with both Success Expectancy and Self-Concept Variables in Block 3 ( $\Delta\text{Adj.}\underline{R}^2 = .03$ ,  $p \leq .01$ ).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .



Table 13

Summary of Hierarchical Multiple Regression Analyses Testing Success Expectancy as a Mediator of Self-Concept Variables Predicting Career Aspiration Sex-Type for Males (n = 96)

		Variable	B	SE B	$\beta$
Step 1	Block 2 <sup>a</sup>	GPA	-.10	.16	-.07
		Global Self-Concept	-.08	.13	-.09
		Job Competence Discrepancy	.10	.11	.10
		Scholastic Ability Discrepancy	-.12	.10	-.16
		Intellectual Ability Discrepancy	.05	.10	.07
		Social Acceptance Discrepancy	.05	.09	.07
		Instrumentality	-.00	.02	-.03
		Expressivity	.00	.01	-.01
Step 2	Block 3 <sup>b</sup>	GPA	-.12	.16	-.09
		Success Expectancy	.11	.11	.12
		Global Self-Concept	-.07	.13	-.08
		Job Competence Discrepancy	.10	.11	.11
		Scholastic Ability Discrepancy	-.15	.10	-.20
		Intellectual Ability Discrepancy	.06	.10	.07
		Social Acceptance Discrepancy	.04	.09	.07
		Instrumentality	-.01	.02	-.01
		Expressivity	.00	.01	-.01

<sup>a</sup> In Step 1 GPA was entered alone in Block 1 ( $\text{Adj.}\underline{R}^2 = -.01, \underline{ns}$ ), and with the predictor variables in Block 2 ( $\Delta\text{Adj.}\underline{R}^2 = -.02, \underline{ns}$ ).

<sup>b</sup> In Step 2 GPA was entered alone in Block 1 ( $\text{Adj.}\underline{R}^2 = -.01, \underline{ns}$ ), with Success Expectancy in Block 2 ( $\Delta\text{Adj.}\underline{R}^2 = .00, \underline{ns}$ ), and with both Success Expectancy and Self-Concept Variables in Block 3 ( $\Delta\text{Adj.}\underline{R}^2 = -.03, \underline{ns}$ ).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Table 14

Summary of Hierarchical Multiple Regression Analyses Testing Subjective Task Value as a Mediator of Self-Concept Variables Predictors Career Aspiration Sex-Type for Females (n = 107)

		Variable	B	SE B	$\beta$
Step 1	Block 2 <sup>a</sup>	GPA	.01	.17	.01
		Global Self-Concept	.04	.18	.03
		Job Competence Discrepancy	.10	.11	.10
		Scholastic Ability Discrepancy	-.10	.13	-.10
		Intellectual Ability Discrepancy	-.09	.11	-.09
		Social Acceptance Discrepancy	-.01	.09	-.01
		Instrumentality	-.05	.02	-.30 *
		Expressivity	.01	.02	.07
Step 2	Block 3 <sup>b</sup>	GPA	-.02	.16	-.01
		Subjective Task Value	.51	.13	.39 ***
		Global Self-Concept	-.07	.17	-.06
		Job Competence Discrepancy	.09	.10	.09
		Scholastic Ability Discrepancy	-.03	.13	-.03
		Intellectual Ability Discrepancy	-.10	.10	-.10
		Social Acceptance Discrepancy	-.08	.08	-.10
		Instrumentality	-.05	.02	-.30 *
Expressivity	.00	.02	.00		

<sup>a</sup> In Step 1 GPA was entered alone in Block 1 ( $\text{Adj.}\underline{R}^2 = -.01$ , ns), and with the predictor variables in Block 2 ( $\Delta\text{Adj.}\underline{R}^2 = .01$ , ns).

<sup>b</sup> In Step 2 GPA was entered alone in Block 1 ( $\text{Adj.}\underline{R}^2 = -.01$ , ns), with Subjective Task Value in Block 2 ( $\Delta\text{Adj.}\underline{R}^2 = .10$ ,  $p \leq .01$ ), and with both Subjective Task Value and Self-Concept Variables in Block 3 ( $\Delta\text{Adj.}\underline{R}^2 = .04$ ,  $p \leq .01$ ).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Table 15

Summary of Hierarchical Multiple Regression Analyses Testing Subjective Task Value As a Mediator of Self-Concept Variables Predicting Career Aspiration Sex-Type for Males (n = 96)

		Variable	<u>B</u>	<u>SE B</u>	<u>β</u>
Step 1	Block 2 <sup>a</sup>	GPA	-.10	.16	-.07
		Global Self-Concept	-.08	.13	-.09
		Job Competence Discrepancy	-.10	.11	.10
		Scholastic Ability Discrepancy	-.12	.10	-.16
		Intellectual Ability Discrepancy	.05	.10	.07
		Social Acceptance Discrepancy	.05	.09	.07
		Instrumentality	-.00	.02	-.03
		Expressivity	.00	.01	-.01
Step 2	Block 3 <sup>b</sup>	GPA	-.10	.16	-.07
		Subjective Task Value	.10	.10	.12
		Global Self-Concept	-.11	.14	-.12
		Job Competence Discrepancy	.08	.11	.08
		Scholastic Ability Discrepancy	-.12	.10	-.16
		Intellectual Ability Discrepancy	.06	.10	.07
		Social Acceptance Discrepancy	.04	.09	.07
		Instrumentality	-.01	.02	-.06
		Expressivity	-.00	.02	-.03

<sup>a</sup> In Step 1 GPA was entered alone in Block 1 ( $\text{Adj.}R^2 = -.01$ , ns), and with the predictor variables in Block 2 ( $\Delta\text{Adj.}R^2 = -.02$ , ns).

<sup>b</sup> In Step 2 GPA was entered alone in Block 1 ( $\text{Adj.}R^2 = -.01$ , ns), with Subjective Task Value in Block 2 ( $\Delta\text{Adj.}R^2 = -.01$ , ns), and with both Subjective Task Value and Self-Concept Variables in Block 3 ( $\Delta\text{Adj.}R^2 = -.01$ , ns).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Table 16

Pearson Product Moment Correlations Among Variables Used in Tests of Mediators of the Relationship Between Occupation Sex-Stereotypes and Career Aspiration for Male (n = 108) and Female (n = 117) University Students

VARIABLE	1.	2.	3.	4.	5.	6.
<b>Occupation Sex-stereotype</b>						
1. Masculine	---	.38 ***	-.16	.25 **	-.27 **	-.16
2. Feminine	.35 ***	---	-.01	.37 ***	.13	-.14
<b>Mediators</b>						
3. Success Expectancy	.15	-.11	---	-.26 **	.07	.23 *
4. Subjective Task Value	.08	.19 *	-.23 *	---	.10	-.05
<b>Career Aspiration</b>						
5. Sex-Type	-.19 *	.45 ***	-.36 ***	.27 **	---	-.14
6. Status	.06	.06	.24 **	-.03	-.23 *	---

NOTE: Correlations for male subjects are positioned above the diagonal, those for females are positioned below the diagonal.

\*  $p \leq .05$     \*\*  $p \leq .01$     \*\*\*  $p \leq .001$

Table 17

Summary of Multiple Regression Analyses (Simultaneous) for Occupation Sex-StereotypeVariables Predicting Success Expectancy

Variable	<u>B</u>	<u>SE B</u>	$\beta$
Females ( $n=117$ ) <sup>a</sup>			
Feminine Stereotype	-.02	.01	-.19
Masculine Stereotype	.03	.01	.22 *
Males ( $n=108$ ) <sup>b</sup>			
Feminine Stereotype	.01	.01	.06
Masculine Stereotype	-.02	.01	-.18

<sup>a</sup>  $\text{Adj.}R^2 = .04$  ( $p = .04$ ).

<sup>b</sup>  $\text{Adj.}R^2 = .01$  ( $ns$ ).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Table 18

Summary of Hierarchical Multiple Regression Analyses Testing Success Expectancy as a Mediator of Occupation Sex-Stereotype Variables Predicting Career Aspiration Status

		Variable	B	SE B	$\beta$
Females ( $n=117$ )					
Step 1 <sup>a</sup>		Feminine Stereotype	.08	.18	.04
		Masculine Stereotype	.14	.27	.05
Step 2 <sup>b</sup>	Block 2	Success Expectancy	4.96	1.85	.25 **
		Feminine Stereotype	.16	.18	.09
		Masculine Stereotype	-.01	.27	-.00
Males ( $n=108$ )					
Step 1 <sup>c</sup>		Feminine Stereotype	-.19	.23	-.09
		Masculine Stereotype	-.35	.29	-.13
Step 2 <sup>d</sup>	Block 2	Success Expectancy	4.99	2.24	.21 *
		Feminine Stereotype	-.23	.23	-.10
		Masculine Stereotype	-.24	.29	-.09

<sup>a</sup> The predictor variables alone were entered in Step 1 ( $\text{Adj.}\underline{R}^2 = -.01$ , ns).

<sup>b</sup> Success Expectancy was entered alone in Step 2, Block 1 ( $\text{Adj.}\underline{R}^2 = .05$ ,  $p = .009$ ), and with the predictor variables in Block 2 ( $\Delta\text{Adj.}\underline{R}^2 = -.01$ ,  $p = .054$ ).

<sup>c</sup> The predictor variables alone were entered in Step 1 ( $\text{Adj.}\underline{R}^2 = .01$ , ns).

<sup>d</sup> Success Expectancy was entered alone in Step 2, Block 1 ( $\text{Adj.}\underline{R}^2 = .04$ ,  $p = .018$ ), and with the predictor variables in Block 2 ( $\Delta\text{Adj.}\underline{R}^2 = .01$ ,  $p = .041$ ).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Table 19

Summary of Multiple Regression Analyses (Simultaneous) for Occupation Sex-StereotypeVariables Predicting Subjective Task Value

Variable	<u>B</u>	<u>SE B</u>	$\beta$
Females ( $n=117$ ) <sup>a</sup>			
Feminine Stereotype	.02	.01	.19
Masculine Stereotype	.00	.01	.02
Males ( $n=108$ ) <sup>b</sup>			
Feminine Stereotype	.03	.01	.32 ***
Masculine Stereotype	.02	.01	.13

<sup>a</sup>  $\text{Adj.}\mathbf{R}^2 = .02$  (ns).

<sup>b</sup>  $\text{Adj.}\mathbf{R}^2 = .13$  ( $p < .000$ ).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Table 20

Summary of Hierarchical Multiple Regression Analyses Testing Subjective Task Value as a Mediator of Occupation Sex-Stereotype Variables Predicting Career Aspiration Status

		Variable	B	SE B	$\beta$
Females ( $n=117$ )					
Step 1 <sup>a</sup>		Feminine Stereotype	.08	.18	.04
		Masculine Stereotype	.13	.27	.05
Step 2 <sup>b</sup>	Block 2	Subjective Task Value	-.93	2.08	-.04
		Feminine Stereotype	.09	.18	.05
		Masculine Stereotype	.14	.27	.05
Males ( $n=108$ )					
Step 1 <sup>c</sup>		Feminine Stereotype	-.19	.23	-.09
		Masculine Stereotype	-.35	.29	-.23
Step 2 <sup>d</sup>	Block 2	Subjective Task Value	.24	2.30	.01
		Feminine Stereotype	-.20	.24	-.09
		Masculine Stereotype	-.36	.29	-.13

<sup>a</sup> The predictor variables alone were entered in Step 1 ( $\text{Adj.}R^2 = .01$ , ns).

<sup>b</sup> Subjective Task Value was entered alone in Step 2, Block 1 ( $\text{Adj.}R^2 = .01$ , ns), and with the predictor variables in Block 2 ( $\Delta\text{Adj.}R^2 = .01$ , ns).

<sup>c</sup> The predictor variables alone were entered in Step 1 ( $\text{Adj.}R^2 = .01$ , ns).

<sup>d</sup> Subjective Task Value was entered alone in Step 2, Block 1 ( $\text{Adj.}R^2 = .01$ , ns), and with the predictor variables in Block 2 ( $\Delta\text{Adj.}R^2 = .02$ , ns).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .



Table 21

Summary of Hierarchical Multiple Regression Analyses Testing Success Expectancy as a Mediator of Occupation Sex-Stereotype Variables Predicting Career Aspiration Sex-Type

		Variable	B	SE B	$\beta$
Females ( $n=117$ )					
Step 1 <sup>a</sup>		Feminine Stereotype	.07	.01	.59 ***
		Masculine Stereotype	.07	.01	-.39 ***
Step 2 <sup>b</sup>	Block 2	Success Expectancy	-.31	.09	-.25 **
		Feminine Stereotype	.06	.01	.54 ***
		Masculine Stereotype	-.06	.01	-.34 ***
Males ( $n=108$ )					
Step 1 <sup>c</sup>		Feminine Stereotype	.02	.01	.27 **
		Masculine Stereotype	-.04	.01	-.37 ***
Step 2 <sup>d</sup>	Block 2	Success Expectancy	.02	.09	.02
		Feminine Stereotype	.02	.01	.27 **
		Masculine Stereotype	-.04	.01	-.36 ***

<sup>a</sup> The predictor variables alone were entered in Step 1 ( $\text{Adj.}R^2 = .32, p < .000$ ).

<sup>b</sup> Success Expectancy was entered alone in Step 2, Block 1 ( $\text{Adj.}R^2 = .12, p < .000$ ), and with the predictor variables in Block 2 ( $\Delta\text{Adj.}R^2 = .26, p < .000$ ).

<sup>c</sup> The predictor variables alone were entered in Step 1 ( $\text{Adj.}R^2 = .12, p \leq .001$ ).

<sup>d</sup> Success Expectancy was entered alone in Step 2, Block 1 ( $\text{Adj.}R^2 = .00, \text{ns}$ ), and with the predictor variables in Block 2 ( $\Delta\text{Adj.}R^2 = .12, p \leq .002$ ).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Table 22

Summary of Hierarchical Multiple Regression Analyses Testing Subjective Task Value as a Mediator of Occupation Sex-Stereotype Variables Predicting Career Aspiration Sex-Type

		Variable	B	SE B	$\beta$
Females (n=117)					
Step 1 <sup>a</sup>		Feminine Stereotype	.07	.01	.59 ***
		Masculine Stereotype	-.07	.01	-.39 ***
Step 2 <sup>b</sup>	Block 2	Subjective Task Value	.27	.1	.19 *
		Feminine Stereotype	.06	.01	.55 ***
		Masculine Stereotype	.07	.01	-.39 ***
Males (n=108)					
Step 1 <sup>c</sup>		Feminine Stereotype	.02	.01	.27 **
		Masculine Stereotype	-.04	.01	-.37 ***
Step 2 <sup>d</sup>	Block 2	Subjective Task Value	.10	.09	.11
		Feminine Stereotype	.02	.01	.23 *
		Masculine Stereotype	-.04	.01	-.38 ***

<sup>a</sup> The predictor variables alone were entered in Step 1 ( $\text{Adj.}\underline{R}^2 = .32, p \leq .001$ ).

<sup>b</sup> Subjective Task Value was entered alone in Step 2, Block 1 ( $\text{Adj.}\underline{R}^2 = .06, p \leq .001$ ), and with the predictor variables in Block 2 ( $\Delta\text{Adj.}\underline{R}^2 = .30, p \leq .001$ ).

<sup>c</sup> The predictor variables alone were entered in Step 1 ( $\text{Adj.}\underline{R}^2 = .12, p \leq .001$ ).

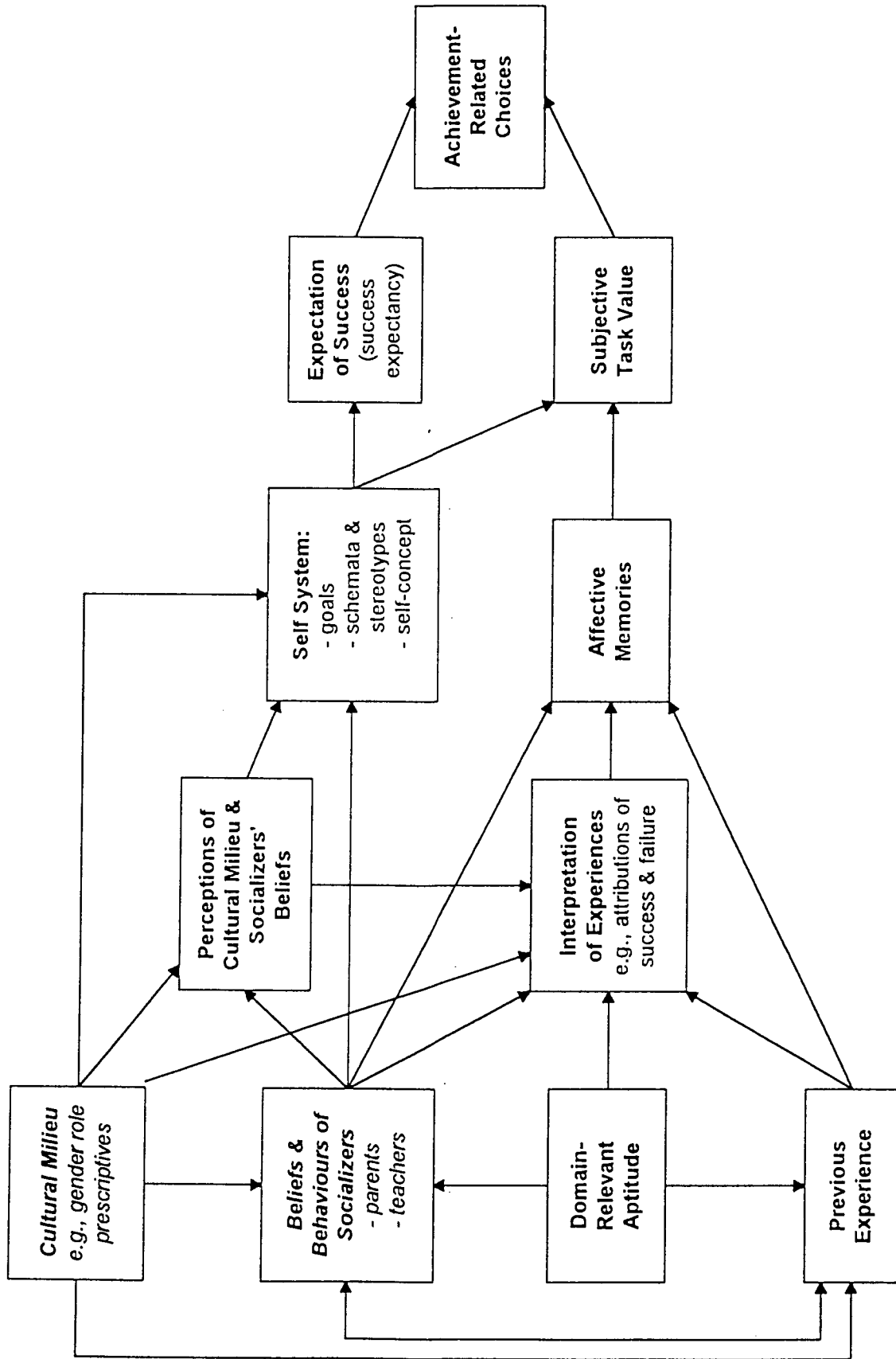
<sup>d</sup> Subjective Task Value was entered alone in Step 2, Block 1 ( $\text{Adj.}\underline{R}^2 = .00, \text{ns}$ ), and with the predictor variables in Block 2 ( $\Delta\text{Adj.}\underline{R}^2 = .12, p \leq .001$ ).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

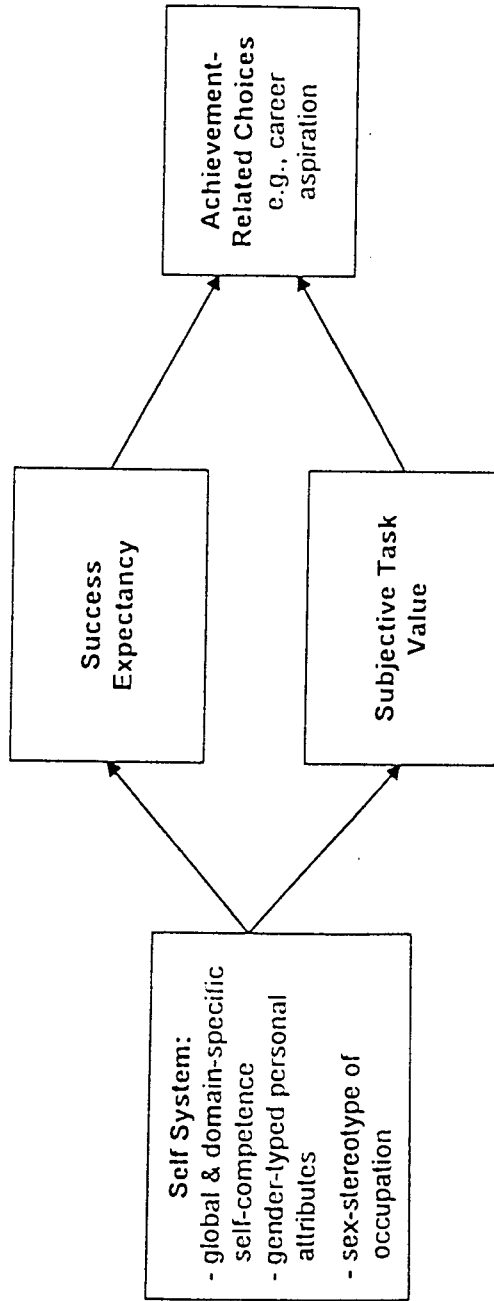
Figure Captions

Figure 1 . Eccles' model (1987) of achievement-related choices.

Figure 2 . Constructs extracted from Eccles' model (1987) of achievement related choices used to examine the role of success expectancy and subjective task value as mediators.



Adapted from Eccles (1987).



Adapted from Eccles (1987).