

**Comparison of Career-Related Self-Efficacy Expectancy  
levels of third and fourth-year Male and Female  
University Students**

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DEAN

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF MASTERS OF ARTS

in the Department  
of  
Psychological Foundations

We accept the thesis as conforming to the required standard

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## **ABSTRACT**

The purpose of this study is to investigate gender differences in career choices of university students. More specifically, this research will compare self-efficacy expectancy regarding career options as perceived by third and fourth year Computer Science, Education, Geography, and Nursing students. In total 81 students, 33 males and 48 females, filled out two questionnaires. The Vocational Preference Inventory was employed to determine self-efficacy expectancy levels with regard to traditional and non-traditional career fields. The percentage of 20 professions, all of which students reported they could successfully perform the job duties, was calculated. Chi-square analyses of the relationship between gender and the percentage of 'Yes' responses were performed for each occupation. Further, a t-test analysis was used to examine the relationship of self-efficacy, and gender to subject's perceived range of career options. The second scale, the Career Decision Making Self-Efficacy Scale, was employed to investigate counseling interventions in career-related decisions. Means and Standard Deviations were calculated to establish the individual's and group's confidence levels for each of the five subscales. Finally, to determine gender differences among each subscale, t-tests were conducted. Results of the Vocational Preference

Inventory indicated overall gender differences in self - efficacy expectancy levels with regard to traditional and non-traditional careers. Male students tended to gravitate more towards non-traditional occupations, whereas female students felt more attracted to traditional career pursuits. The study found significant differences in means (total group mean for females 395.65; total group mean for males 372.9). However, the results also indicated that the traditional division between male and female careers has clearly diminished. Results of the Career Decision-Making Self-Efficacy Scale indicated that overall, female students felt more confident in reaching career decisions. Of the four occupational groups, Computer Science, Education, Geography, and Nursing, Geography students showed the highest self-efficacy scores, whereas Nursing students showed the lowest overall self-efficacy scores . All in all, it might be useful to conduct this study with a bigger sample and in conjunction with different measures to confirm the results.

We accept this thesis as conforming to the required standard

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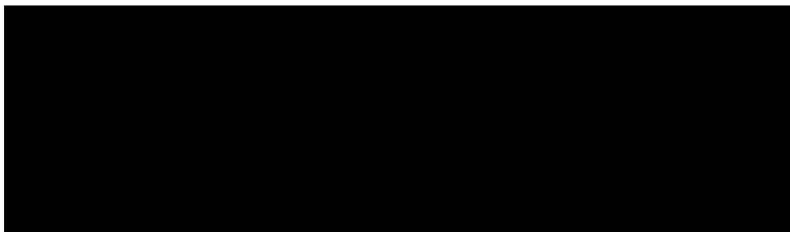
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## ACKNOWLEDGEMENTS

I wish to express my thanks and gratitude to all the committee members: Dr. France, Dr. Hett, Dr. West, and Dr. Howard for their helpful suggestions, patient guidance and invaluable expertise.

In particular, I wish to thank Dr. France for being such a good listener to my endless questions and above all for being such a good friend and mentor. Very special thanks to all the students, who have participated in this study. Without their cooperation this thesis would have never been possible. To my fellow graduate students and people of the department, who with their encouragements and optimism gave me the determination to finish this thesis. Thank you!

Finally, I dedicate this thesis to my parents, my brother and my friends all over the world. To them I express my deepest gratitude.

## CHAPTER 1

### **Introduction**

"Female pilot scares passenger out of his seat" was the heading of a newspaper article. This incident took place in Seattle on February 5, 1991. Alaska Airline flight 603 had gone a few feet from the gate when a male passenger found out that a female pilot was sitting in the cockpit. The frightened male passenger then asked to be let off, collected his luggage that was unloaded onto the tarmac and disappeared (Times Colonist, January 1991).

A similar event took place last summer. On one of my trips to Switzerland, a female pilot welcomed the passengers and wished them an enjoyable flight. As soon as the announcement was over, an atmosphere of amazement, non-believing, even fear pervaded the airplane. My neighbor uttered that he sure hopes that this woman pilot knows how to fly this plane! This event demonstrates that, many people are still not used to the idea of a female pilot flying them to their destination. As more and more female penetrate the domain of male-dominated professions, the general population still seem to look with suspicion at females in non-traditional career fields. Why does such suspicion exist? Can females not handle the increased pressure and responsibility of high status careers? Why are women so heavily underrepresented in such career fields as management, engineering, medicine, law or other high-status

professions? All these questions have received wide attention in the intellectual community, but a lot more research needs to be done to fully understand and explain the dynamics of this career phenomenon in its cultural context.

## **SOCIALIZATION**

It is generally accepted that divisions of labor on the basis of gender have been transmitted from generation to generation through the socialization process (L.S.Albrecht, 1976). Historically, labour has been gender-typed as far back as the early cave dwellers. While the men hunted animals for food and clothes the women stayed behind to take care of domestic tasks. During the Industrial Revolution strong social norms concerning appropriate work roles for women and men emerged. Attempts to explain this phenomenon often centered on the fact that females usually have discontinuous work histories which prevented them from entering high level occupations. As a result of this, the female's work role was seen at home or in low level jobs in factories (Caplow, 1954).

Today, socializing females and males into fixed roles according to gender is a process that pervades the fabric of most societies. Right after birth, boys are wrapped into blue and girls into pink blankets, thus starting the socialization process (Joffe, 1971). Later, Jane learns that girls are gentle and Tom learns that boys don't cry.

Beginning with parents, then with brothers and sisters, later with teachers, peers, and adults, children learn the roles appropriate to their gender. Parents, in particular, are very powerful agents in the socialization process. There is growing evidence that they treat their sons and daughters differently. For example, fathers engage in more physical play with a son than mothers play with either son or daughter (Unger, 1976). Fathers also are likely to buy stereotypic toys for their sons and daughters, like cars or dolls (Jacklin & Maccoby, 1983). Such differential treatment of boys and girls is bound to perpetuate gender roles stereotypes.

The process of socialization puts women in a very disadvantaged position once they start making career choices. The majority of females end up in low-status, low-paying traditional female occupations (Hackett & Betz, 1982). At an early age, many women are discouraged by parents, teachers, and society as a whole to enter certain occupational fields. Societal beliefs and expectations, passed on to females via the socialization process, may pose severe barriers to careers (Ellis & Sayer, 1986). Bandura (1977) states that the concept of personal efficacy is seen as an important mechanism by which human behavior is acquired and performance-based processes, which bring about psychological changes, are initiated. Further, Bandura (1977) states that Efficacy Expectation is the conviction that one can successfully execute a behavior required to produce certain outcomes. The strength of a people's conviction in

their own abilities is likely to affect whether they they will even attempt to cope with certain situations.

In today's society, women often develop strong efficacy beliefs for traditional occupational roles, such as secretarial work, elementary school teaching, nursing, and weak beliefs regarding their abilities in non-traditional (male-dominated) career pursuits (Hackett & Betz, 1982). These efficacy beliefs, in effect, may serve as powerful internal barriers to female's career choices. As a result, females are severely underrepresented in many high-paying non-traditional occupations (Hackett & Betz, 1981). Recent events all over the Western World indicate that major changes in occupational gender role stereotyping are occurring. The process of deemphasizing the traditional gender role division of the labor force has been instigated and led by a powerful female movement. The objective of this movement is to obtain more equality and status regardless of gender, be it at home or at work. As a result more and more females are moving into occupations traditionally defined as male dominated and, conversely, men are moving into traditionally female occupations such as nursing and secretarial work.

A relatively recent development in the field of Career Psychology, referred to as Self-Efficacy Theory offers a promising approach to career counseling. Self-Efficacy Theory postulates that all forms of behavioral change operate through a common mechanism:

"The alteration of the individual's expectation of personal mastery and success" (Bandura, 1977, 1982). According to this theory, there are two types of expectancies that strongly influence an individual's behavior: outcome expectancy, which is the belief that certain behaviors will lead to certain outcomes, and Self-Efficacy Expectancy, or the belief that one can successfully perform a certain behavior (Maddux & Sherer 1982). This study is focused on the second of these factors that is, Self-Efficacy Expectations.

### **Self-Efficacy Expectancy**

Expectancy of Self-Efficacy can be acquired via four different avenues of information (Figure1): performance accomplishment, vicarious experience, verbal persuasion, and emotional arousal (Hackett & Betz, 1981).

Performance accomplishment is acquired or modified by "doing" a required behavior. For example, despite his fear of heights, an individual joins a group of friends to climb a lofty mountain peak. After the successful experience the individual's belief in his/her ability to overcome fears is likely to increase.

Vicarious learning, observing others modelling a given behavior is another very important source of information to self-efficacy. For example, a rock climber who observes his/her partner

successfully climb the key pitch is likely to acquire a higher efficacy expectancy in his/her rock climbing abilities.

Verbal persuasion, or encouraging words from others can also increase an individual's self-efficacy expectations. For example, an experienced mountain climber dreams of climbing Mount Everest over a very challenging route but sometimes questions his abilities to succeed in this ambitious endeavor. Encouraging words from friends who believe that he/she can make it, may overcome the climber's hesitation and thus increase his/her Self-Efficacy Expectations.

Lastly, methods of decreasing an individual's level of emotional arousal before a behavior has to be performed, may also have a positive effect on someone's Self-Efficacy Expectancy. For example, a climber who is very apprehensive to lead climb a difficult route may practice difficult lead climbing on an artificial climbing wall. This training may decrease the climber's anxiety and thus improve her Self-Efficacy Expectation.

According to Bandura (1977) Self-Efficacy Expectancy is the most powerful factor influencing behavioral change. Bandura states that Self-Efficacy Expectancy determines the initial decision to perform a behavior, the effort expended, and the persistence when problems arise. For example, a woman who strongly believes in her

ability to become an airline pilot is driven, despite possible problems of job discrimination due to the socialization process or difficulty of flight training, by a high level of self-efficacy expectancy. Conversely, low career-related Self-Efficacy Expectancy prevents many females from fully developing their potential talents and interest.

Figure 1 provides a model summarizing the postulated effects of traditional female socialization on career-related Self-Efficacy Expectations. This model presents the four sources of efficacy information, examples of how female socialization may influence the acquisition of each type of information, and the postulated effects of these on the development of Self-Efficacy Expectations in females. A female who would like to pursue a non-traditional career such as being an airline pilot, but lacks the exposure to such a career because her parents find it more appropriate for her to pursue a traditional career, is quite likely to develop a lower self-efficacy level with regard to non-traditional career fields. On the other hand, the female who was the pilot of the DC-10 heading for Europe, maybe has a parent, who is a pilot, thus acting as a strong role model and exposing her to flying at a very early age. The daughter maybe grew up in a social environment that encouraged her to excel in whatever she was doing. Hence, performance accomplishment was fostered from very early on in her life.

Females in traditional work fields may not have had the opportunity to learn to cope with emotional arousal, associated with stereotypically masculine activities. Consequently, they may display a high level of anxiety when confronted with such activities. Conversely, the flying lessons and the practice of flying which might be offered to the female in the above example may have taught the daughter how to cope with her emotional arousal. Thus, when the time came to start her first solo flight, she was confident and sure of her flying abilities. Moreover, the parents likely supported their daughter in times where she felt discouraged and overwhelmed by the difficulty of her pilot training. Conversely, a woman whose dream it is to become a pilot might have parents and friends, who actively discourage her from pursuing a non-traditional career. Instead, many parents encourage their daughters to pursue traditional careers such as social worker, elementary school teacher or secretary. These females also are likely to develop a low Self-Efficacy level for typically male occupations.

FIG.1

SOURCES OF SELF EFFICACY INFORMATION	EXAMPLES OF SOCIALIZATION EXPERIENCES TYPICAL AMONG FEMALES	EFFECTS ON CAREER-RELATED SELF-EFFICACY
performance accomplishment	greater involvement in domestic and nurturing activities, but less involvement in sports, mechanical activities, and other traditionally "masculine" domains	higher self-efficacy in domestic activities
vicarious learning and self-efficacy	lack of exposure to female role models. Females models largely represent traditional roles and occupations	higher self-efficacy with regard to traditional female occupations. Lower Self-Efficacy in non-traditional occupations
emotional arousal	higher levels of anxiety are reported by feminine sex-typed individuals	further decreases in both generalized and specific self-efficacy
verbal persuasion	active discouragement from non-traditional pursuits and activities, e.g. math	lowered self-efficacy expectations in relationship to a variety of career options

Adapted from "A Self-Efficacy Approach to the Career Development of Women" by G. Hackett and N. E. Betz. Published in the Journal of Vocational Behavior, 18, 333 (1981) Reprinted by permission.

The purpose of this study is to investigate how Self-Efficacy Theory can be applied to the career decision process of third and fourth year university students. More specifically, this study will compare Self-Efficacy Expectancy regarding career options as perceived by female and male university students. Further, this study will investigate gender differences in Self-Efficacy Expectations with regard to a chosen career. Lastly, I will examine what counseling interventions will be necessary, in particular for female students, to increase career-related Self-Efficacy Expectancy.

## CHAPTER 2

### **Review of the Literature**

There have been many studies in the literature that explored the theoretical and practical significance of Self-Efficacy Theory as applied to career decisions. The literature to be reviewed in this chapter indicates that Self-Efficacy beliefs may serve as a strong internal barrier to female's career choices and achievements.

#### **Gender differences in occupational choices**

Hackett and Betz (1981) conducted the first empirical study of career Self-Efficacy. In their study they examined gender differences in Self-Efficacy with regard to the educational requirements and job duties of 10 traditionally female and 10 traditionally male occupations across the six Holland Themes (Holland, 1973). Results indicated that Self-Efficacy is significantly related to occupational choice and that gender differences in Self-Efficacy are predictive of gender differences in occupational considerations for certain types of occupations. The gender differences that emerged were with respect to the traditional and non-traditional groups of careers (e.g. engineers, secretary). No gender differences were observed for some occupations that have typically been considered as gender-linked, e.g. physician, lawyer. This study was limited by the small number of

occupations investigated and the lack of reliability and validity data on the Self-Efficacy measures used.

Similar to Betz and Hackett's finding, Post-Kammer and Smith (1985) found gender differences in Self-Efficacy for certain traditionally male and female occupations; they also found a significant relationship between Self-Efficacy and vocational interest that is female with a low level of Self-Efficacy tend to choose traditional careers. However, Post-Kammer and Smith's population (eight and ninth graders) reported gender differences in Self-Efficacy across fewer occupations than did Betz Hackett's (1981) subjects. It is difficult to account for these differences. It is possible that, due to their career development stage, junior high students may not yet be using Self-Efficacy estimates in considering career options. Also, these younger students lacked clarity about the competencies required by various occupations. Post-Kammer and Smith modified Betz and Hackett's original instrument by adding four math-related occupations and investigated gender differences in the consideration of math-oriented and non-math-oriented occupations. Both Self-Efficacy and vocational interests contributed significantly to the prediction of math-related and non-math related occupational consideration for females. Post-Kammer and Smith suggested that females may be more strongly influenced by Self-Efficacy than males in considering career options. Unfortunately, although this study

included different racial/ethnic groups (e.g., 41% Black, 9% Hispanic), racial/ethnic influences on Self-Efficacy were not taken into account.

### **Female's Self-Efficacy of traditional versus non-traditional occupations**

Layton (1984) used a slightly modified version of Betz and Hackett's (1981) Self-Efficacy measure. She compared a 'Self-Efficacy model' of female's career development with a 'locus of control model' to predict career exploration behavior and range of occupations considered by college women. She found that female's Self-Efficacy for traditionally female occupations was significantly higher than their Self-Efficacy for non-traditional occupations, and that these differences in Self-Efficacy were moderately correlated with the range of traditional and non-traditional careers considered. Overall, the 'Self-Efficacy model' proved to be superior to the 'locus of control model'. An interesting finding of Layton's (1984) was that career salience moderated the effects of Self-Efficacy on occupational consideration; career Self-Efficacy was a better predictor of college major choice for females with high versus low career salience.. Thus, it seems useful to explore the effects of career salience on career Self-Efficacy in future research.

Ayres (1980) explored the relationship of Self-Efficacy beliefs to career consideration in college students. She examined Self-

Efficacy with regard to specific tasks (i.e. lesson planning, washing of patients) required by four occupations: physician, nurse, college professor, and elementary teacher. She then correlated the student' Self-Efficacy rating with their consideration of the four occupations. Ayres reported a significant relationship between Self-Efficacy expectations and occupational consideration. Gender differences were observed with respect to specific tasks, e.g. males scored higher on mathematics and science occupations, while females scored higher on traditional female careers, such as caring for the sick or teaching. Unlike other researchers, Ayres presented her subjects with a list of very specific behaviors required by each occupation. Given the difference between Ayres' Self-Efficacy measure and those described earlier (e.g. Betz & Hackett,1981) in terms of level of specificity or abstraction of the rating scale, further studies seem called to clarify the relationship between task specificity and Self-Efficacy. Specifically, while other researchers looked at perceived competence in relation to occupational fields, Ayres presented her subjects with a list of specific occupational behaviors. It would be useful to explore the relative advantages of this assessment approach.

### Gender-stereotyping of careers

Ellis and Sayer (1986) compared the differences between male and female school children's career aspiration and career expectations. The authors maintain that there have been gains for

females in some traditional male occupations (e.g. law, medicine, and engineering), but in other male dominated professions (e.g. business management, science, and technology) the situation is quite different. Ellis and Sayer suggested that, for females to be totally accepted in all occupational fields, society has to stop viewing careers as being feminine or masculine. The results of this study confirm that there are gender-stereotyping of careers. According to the authors it is more tolerated by society when females enter non-traditional, male dominated careers than if men enter traditional, females dominated career fields, like nursing or secretarial work. The authors feel that boys and girls should be presented with a realistic career picture. They feel that the best way for this realistic career view to be carried out is in schools, since teachers, counselors, parents, and administrators often reinforce gender role stereotyping.

### **Self-Efficacy and persistency in academic programs**

Lent, Brown, and Larkin (1984) have developed a research program investigating career Self-Efficacy in male and female college students majoring in technical/scientific career fields. Lent et al examined the relationship between Self-Efficacy estimates and the degree of persistence and academic success of science/engineering students. Adapting Betz and Hackett's (1981) procedures, they developed a list of 15 scientific and technical occupations and gathered Self-Efficacy estimates with regard to these

occupational fields. Findings indicated that both male and female students with higher confidence in their abilities to complete their educational requirements achieved higher grades and greater persistence in science and engineering majors. Contrary to previous findings (e.g. Betz & Hackett, 1981), Lent et al. did not find male-female differences in career self-efficacy ratings. However, the sample Lent et al. used was relatively homogeneous: students in this study already focused on careers in engineering and sciences, whereas Betz and Hackett's subjects represented a wider range of career fields. Thus, males and females in the sample of Lent et al. may have had more similar efficacy building experiences than males and females in the general population. In addition to being limited by a relatively small sample size, this study produced results of questionable generalizability due to the use of a sample enrolled in a career exploration course.

In a second study, Lent et al. (1986) conducted a partial replication of their earlier study but with a larger sample. In this study the Self-Efficacy for Educational Requirements of Technical/Scientific Occupations Scale was employed. The authors also administered measures of perceived vocational options in technical/scientific career fields, general self esteem, career indecision, expressed vocational interests, and ability. Findings were similar to their first study with respect to the absence of gender differences and the significant relationship of technical/ scientific

Self-Efficacy with grades and persistence in technical majors. The construct validity of the Self-Efficacy measures was supported by nonsignificant correlations between career Self-Efficacy and the measure of self-esteem and career indecision. This suggests that Self-Efficacy is not just a reflection of overall self-confidence of career indecision, but provides some support for career Self-Efficacy as a unique construct.

### **Gender differences and work values**

Lewis (1973) concluded that females emphasize human values more than men. Zapoleon (1961) went as far as to conclude that females regarded getting along with their fellow humans is more important than getting ahead in their careers. Simpson and Simpson (1960) argued that females tended to be more concerned with intrinsic values (i.e. joy to work, happiness etc.) rather than extrinsic work values (i.e. money etc.). This point of view was confirmed in recent studies which concluded, that females put more emphasis on intrinsic values in their work (Kenkel and Gage, 1983).

In a different study which explored sex differences in career values, and interests, it was found that there are many prevalent stereotypes of gender roles and behavior. While males emphasize leadership and monetary rewards, females stress helping others (Norris and Katz, 1980).

A study conducted at Flinders University of South Australia found that male students assign higher rating to instrumental type reasons (social status, money), whereas female students assign more importance to communal, interpersonal goals (working with people, improving society, getting along with their fellow workers (Feather, 1982).

Elementary school children have been found to exhibit gender differences in work values (Tyler, 1951). Recent research suggested that gender differences in work values emerge in early childhood and increase with age throughout the elementary and secondary school years (Hales and Hartman, 1978; Hales and Fenner, 1973; Thompson, 1966; O'Hara, 1962; Dipboye and Anderson, 1959).

### Summary of the literature review

Several studies cited in this literature review have investigated gender differences in the career decision-making process. For example, Betz and Hackett (1981) found, both in terms of Self-Efficacy and subsequent career choice, gender differences in certain occupations. Traditional professions (e.g teacher, secretary) were dominated by females and non-traditional professions (e.g. engineering, executives) were dominated by males. Lent et al., (1984 1986), however, failed to find gender differences in perceived ability regarding technical/scientific career fields, areas that have

traditionally been male-dominated. Differences in these two sets of findings might be attributed to the sample Lent et al. studied. Betz and Hackett's subjects represented a diverse range of occupations and academic skills, whereas the subjects in Lent et al. had a more narrow range of academic ability and were primarily considering science and engineering fields. Hence, the relatively homogeneous sample of Lent et al. may have influenced the findings of gender differences.

In sum, research to date on the relationship between work values and gender has produced a positive relationship between gender and work values. Generally, males rated extrinsic values higher than intrinsic work values, whereas females rated intrinsic values higher than extrinsic work values. But research to date on Self-Efficacy and career decision-making cannot tell us that low Self-Efficacy levels are correlated with traditional careers unequivocally, but it may help to understand better today's career behavior of men and women.

## CHAPTER 3

### Method

#### Subjects

In the present study, a total of 81 students was selected, 33 males and 48 females. All of the participants were third and fourth year students and came from four different faculties and departments. These were Geography, Computer Science, Nursing, and Education. The faculties of Education and Nursing have a higher enrollment of females than males, while the department of Computer Science has more men enrolled. In the department of Geography, male and female student enrollment is about the same (Statistical Department, University of Victoria, 1991). All but three students who participated in the research were Caucasian. Three Computer Science students were Chinese.

#### Instrumentation

In this study I employed two instruments: the Vocational Preference Inventory (Holland, 1965) and the Career Decision Making Self-Efficacy Scale (Taylor & Betz, 1983). The Vocational Preference Inventory (VPI) is a personality inventory designed to yield a broad range of information about the subject's interpersonal relations, interest, values, self-concept, coping behavior, and

identifications. The inventory, which consists of 160 occupational titles, asked participants what level of appeal the listed career fields have for them. The VPI has been developed through several revisions. It shows construct, concurrent and predictive validity of .71 for college students. Retest reliabilities are reported as .93 and .90 for post highschool students (W.R. Guthrie & Al Herman, 1982). To determine Self-Efficacy Expectancy levels of males and females in career related decisions 10 traditional and 10 non-traditional career fields were selected from the titles listed in the inventory. Professions traditionally chosen by females were labelled '**traditional**' and occupations traditionally chosen by males were labelled '**non-traditional**'. Occupations were designated as being traditional or non-traditional on the bases of the percentage of females employed in the occupation (U.S. Women's Bureau, 1975). Only occupations in which 70 % or more members were women (i.e. traditional) or in which 30 % or fewer were females (i.e. non-traditional) were selected for use in the present study. Each participant was asked to indicate whether or not he or she presently feel capable of meeting the job duties of each of the 20 occupations.

The Career Decision-Making Self-Efficacy Scale (CDMSES) provides a useful framework for the assessment and treatment of people experiencing difficulty with the career decision-making process (Robbins, 1985). The scale measures a person's ability and

confidence to engage in the career decision-making process, as it was designed to link Self-Efficacy Expectancies to career-specific behavior. The CDMSES consists of 50 items with a 10-point Likert scale format, ranging from no confidence (0) to complete confidence (10). These 50 items are composed of 5 subscales: Goal Selection, Occupational Information, Problem-Solving, Planning, and Self-Appraisal. Each of these five subscales contains 10 items. The CDMSES internal consistency is adequate (average alpha = .88, Robbins, 1985). The reliability ranges from .50 to .80 (Taylor & Betz, 1983).

### Research Design and Procedures

The data were collected with the help of 3 questionnaires which I randomly handed out to third and fourth year students of the four departments and faculties. On average, the students took about 20 minutes to complete the questionnaires. To avoid class interruptions, all student filled out their questionnaires at home.

For each of the 20 professions, the percentage of students who reported that they could successfully perform the 20 job duties was calculated. Chi-square analyses of the relationships between gender and the percentage of 'Yes' responses (indicating level of Self-Efficacy Expectations) were performed for each occupation.

A t-test analysis for the Vocational Preference Inventory was used to examine the relationship of level of Self-Efficacy, and gender, to subject's perceived range of career options. Scores representing range of career options were calculated. Ranges of traditional and non-traditional career possibilities were calculated by adding the number (10 maximum) the subject indicated that he or she would consider. The total range of career options was the sum of the numbers of traditional and non-traditional possibilities considered.

The Career Decision Making Self-Efficacy Scale (CDMSES) was employed to calculate Means, and Standard Deviation for each item on the Career Decision Making Self-Efficacy Scale. The concept of task difficulty describes the degree to which an individual perceived the item as within his/her range of capabilities, or expectation of Self-Efficacy. Lower Self-Efficacy Expectations are associated with greater perceived task difficulty and vice versa.

To investigate counseling interventions in career-related decisions I calculated the Mean and Standard Deviation of each answer of the CDMSE scale. The higher the mean ( $\bar{x}$ ) the more confidence the sample expressed in reaching a decision for a particular question. If the mean is low, the group or the individual expresses less confidence in reaching a decision. A low value of the Standard Deviation reveals that the spread of the sample on both

sides of the mean is condensed, meaning that the majority of the group has a higher level of confidence in reaching a particular career decision. A high value of the Standard Deviation, however, shows that the spread of the group on both sides of the mean is greater; thus the group has a lower overall confidence level. Therefore, individuals who reached a low score on one of the five subscales (e.g. problem solving, goal selection etc.) can be helped through counseling interventions to improve their abilities in the area of improvement. Thus, based on the mean and standard deviation, I determined in what areas counseling interventions on an individual basis, as well as on the entire sample basis, need to occur. Because the focus of interventions designed to increase Self-Efficacy Expectations is on specific behaviors, responses to each behavioral item were of great utility to develop counseling intervention strategies. Finally, to determine gender differences among each subscale, a t-test was conducted.

### Hypothesis Statements

- 1) There is a positive relationship between Self-Efficacy Expectancy in university students and perceived career options with regard to traditional and non-traditional career fields.

- 2) There is a positive relationship between Self-Efficacy Expectancy of female students in nursing and education and traditional career fields.
- 3) There is a positive relationship between Self-Efficacy Expectancy of male students in computer science and their perceived career options.
- 4) Female students in male dominated career fields have a higher level of Self-Efficacy than female students in female dominated career fields.
- 5) Male students show a greater interest in non-traditional careers, whereas female students show a greater interest in traditional career fields.

## Chapter 4

### **Results**

This study will compare Self-Efficacy Expectancy regarding career options as perceived by female and male university students. In addition, the study will investigate gender differences in Self-Efficacy Expectations with regard to a chosen career. The primary measures are the Career-Decision-Making Self-Efficacy Scale (CDMSES) and the Vocational Preference Inventory (VPI).

Tables 1-4 present the results of Self-Efficacy scores in terms of perceived capability of successful performance of 20 job duties. The results are broken up into four career fields, Geography, Nursing, Computer Science, and Education as represented by the majors of the different groups.

Male students in Geography (table 1) showed the highest Self-Efficacy scores in non-traditional careers for pilot and school principal (67%). For Chemists there was no Self-Efficacy response reported. In traditional career fields they reported highest Self-Efficacy scores for flight attendant and travel agent (83%) and the lowest Self-Efficacy scores were reported for Children's Clothing Designer, Home Economist, and Dental Hygienist. Female students in Geography depicted highest Self-Efficacy scores in the career of

School Principal (60%). No Self-Efficacy scores were reported for Auto Mechanic, Statistician, and Chemist. In traditional careers they reported highest Self-Efficacy for Elementary School Teacher (80%). Children's Clothing Designer received the lowest score (20%). Gender differences were evident in eight of the 20 occupations. Males reported greater Self-Efficacy with regard to confidence for Lawyer, Auto Mechanic, Judge, Statistician and Architect, all occupations traditionally held primarily by males. Females, on the other hand, conveyed a significant higher Self-Efficacy score in three of the 20 occupation, Social Worker, Home Economist, and Dental Hygienist, all careers that have been traditionally dominated by females (table 1).

table 1

## GEOGRAPHY

Occupations	Levels of Confidence for job requirement				x2
	Males n= 6		Females n= 10		
	n	%	n	%	
<b>Non-traditional</b>					
Pilot	4	67	5	50	.42
Lawyer	3	50	3	30	.64*1
School Principal	4	67	6	60	.07
Auto Mechanic	1	17	-	-	1.78*2
Judge	2	33	1	10	1.34*3
Statistician	1	17	-	-	1.52*4
Chemist	-	-	-	-	-
Physicist	1	17	2	20	.03
Architect	3	50	3	30	.64*5
Electronic Technician	2	33	3	30	.02
<b>Traditional</b>					
Secretary	4	67	6	60	.07
Elementary School Teacher	4	67	8	80	.36
Bank Teller	4	67	7	70	.02
Social Worker	2	33	7	70	2.05*6
Insurance Clerk	2	33	4	40	.07
Children's Clothing Designer	1	17	2	20	.09
Home Economist	1	17	5	50	1.78*7
Dental Hygienist	1	17	5	50	1.78*8
Flight Attendant	5	83	7	70	.36
Travel Agent	5	83	6	60	.95*9
*1 p__ .42      *6 p_ .15					
*2 p__ .18      *7 p__ .18					
*3 p__ .24      *8 p__ .18					
*4 p__ .21      *9 p__ .33					
*5 p__ .42					

Chi-square analysis indicated that among Geography male students, the non-traditional career of Statistician revealed a high relationship between gender and level of Self-Efficacy ( $x^2 = 1.52$  with a significance level of .21). A weak relationship was reported for Electronic Technician ( $x^2 = .02$ ). In traditional careers, female

Geography students reported a high relationship between gender and Self-Efficacy for Social Worker ( $x^2 = 2.05$  with a significance level of .15).

In Computer Science, traditionally a male dominated study area, male students showed the highest Self-Efficacy for Statistician (78%). As shown in table 2 they reported the lowest Self-Efficacy scores for Auto Mechanic, Chemist, and Architect (22%). In traditional career fields, Computer Science students had the highest Self-Efficacy scores for Elementary School Teacher, Bank Teller, and Flight Attendant (22%) For Insurance Clerk, Children's Clothing Designer, Home Economist, and Dental Hygienist there were no responses reported. Female students scored highest in the career of a Judge (57%). For Chemist there was no response reported. Table 2 shows the highest Self-Efficacy reported in traditional work fields for Elementary School Teacher (43%) and the lowest for Bank Teller, Home Economist, Insurance Clerk, Children's Clothing Designer and Flight Attendant (14%). Gender differences were found in fourteen of the 20 occupations. Males reported greater Self-Efficacy with regard to confidence level in careers like Pilot, Lawyer, Auto Mechanic, Statistician, Chemist, and Physicist. Females, on the other hand, conveyed a significant higher Self-Efficacy score in six of the 20 occupations, Secretary, Elementary School

table 2

## COMPUTER SCIENCE

Occupations	Level of Confidence for job requirements				x <sup>2</sup>
	Males n=9		Females n=7		
	n	%	n	%	
<b>Non-traditional</b>					
Pilot	5	56	2	29	1.17* 1
Lawyer	5	56	2	29	1.17* 2
School Principal	3	33	2	29	.04
Auto Mechanic	2	22	-	-	1.78* 3
Judge	4	44	4	57	.25
Statistician	7	78	3	43	2.05* 4
Chemist	2	22	-	-	1.78* 5
Physicist	3	33	1	14	.76* 6
Architect	2	22	1	14	.16
Electronic Technician	3	33	2	29	.04
<b>Traditional</b>					
Secretary	1	11	2	29	.79*7
Elementary School Teacher	2	22	3	43	.78*8
Bank Teller	2	22	1	14	.16
Social Worker	2	22	2	29	.08
Insurance Clerk	-	-	1	14	1.37* 9
Children's Clothing Designer	-	-	1	14	1.37*10
Home Economist	-	-	1	14	1.37*11
Dental Hygienist	-	-	2	29	2.94*12
Flight Attendant	2	22	1	14	.16
Travel Agent	1	11	2	29	.79*13

\*1 p \_\_ .28      \* 8 p \_\_ .38  
 \*2 p \_\_ .28      \* 9 p \_\_ .24  
 \*3 p \_\_ .18      \*10 p \_\_ .24  
 \*4 p \_\_ .15      \*11 p \_\_ .24  
 \*5 p \_\_ .18      \*12 p \_\_ .09  
 \*6 p \_\_ .39      \*13 p \_\_ .37  
 \*7 p \_\_ .37

School Teacher, Home Economist, Insurance Clerk, Children's Clothing Designer, and Dental Hygienist (table 2).

Table 2 also shows that among Computer Science male students, the chi-square analysis of non-traditional careers revealed the strongest relationship for Statistician ( $\chi^2 = 2.05$  with a significance level of .15). Electronic Technician conveyed the weakest relationship between gender and Self-Efficacy (.04). In traditional careers, female students reported the strongest relationship for Dental Hygienist ( $\chi^2 = 2.94$  with a significance level of .09). The weakest relationship was reported for Social Worker ( $\chi^2 = .08$ ).

Table 3 shows the results of male Nursing students who reported for Pilot and Lawyer (50%) the highest Self-Efficacy scores. There was no response to the occupations of Statistician, Auto Mechanic, Chemist, and Electronic Technician. In traditional careers the highest Self-Efficacy score was received for Elementary School Teacher (50%). In non-traditional careers female nursing students reported highest scores for Pilot and Architect (17%) The careers of Statistician, Chemist, and Physicist received no response. In the traditional career fields female students conveyed the highest Self-Efficacy scores for Social Worker (50%) and the lowest score was reported for Insurance Clerk which didn't receive an answer. Gender differences were evident in twelve of the 20 occupations. Males reported greater Self-Efficacy with regard to confidence levels for Pilot, Lawyer, School Principal, Judge, and Physicist, careers which are all male dominated. Females, on the other hand, reported greater Self-Efficacy with regard to self-confidence for Elementary School

Teacher, Bank Teller, Social Worker, Children's Clothing Designer, Home Economist, Flight Attendant and Travel Agent, all careers that are female dominated (table 3).

Male Nursing students showed the strongest relationship for gender and Self-Efficacy in non-traditional careers for Physicist ( $\chi^2 = 3.20$  with a significance level of .07) Architect showed with .14 the weakest relationship. Table 3 reported that in traditional careers, female nursing students showed the strongest relationship with regard to Self-Efficacy and gender for Secretary ( $\chi^2 = 1.78$  with a level of significance of .18) and the weakest relationship was found for Elementary School Teacher ( $\chi^2 = .08$ ).

table 3

## Nursing

Occupations	Level of Confidence for job requirement				x2
	Males n=4		Females n=12		
	n	%	n	%	
<b>Non-traditional</b>					
Pilot	2	50	2	17	1.78* 1
Lawyer	2	50	1	8	3.42* 2
School Principal	1	25	1	8	.76* 3
Auto Mechanic	-	-	-	-	-
Judge	1	25	1	8	.76* 4
Statistician	-	-	-	-	-
Chemist	-	-	-	-	-
Physicist	1	25	-	-	3.20* 5
Architect	1	25	2	17	.14
Electronic Technician	-	-	1	8	.36
<b>Traditional</b>					
Secretary	-	-	4	33	1.78* 6
Elementary School Teacher	2	50	5	42	.08
Bank Teller	-	-	3	25	1.23* 7
Social Worker	1	25	6	50	.76* 8
Insurance Clerk	-	-	-	-	-
Children's Clothing Designer	-	-	2	17	.76* 9
Home Economist	-	-	2	17	.76* 10
Dental Hygienist	-	-	1	8	.36
Flight Attendant	-	-	3	25	1.23* 11
Travel Agent	1	25	2	17	.76* 12

\* 1 p\_\_ .18 \* 7 p\_\_ .27

\* 2 p\_\_ .06 \* 8 p\_\_ .38

\* 3 p\_\_ .38 \* 9 p\_\_ .38

\* 4 p\_\_ .38 \*10 p\_\_ .38

\* 5 p\_\_ .07 \*11 p\_\_ .27

\* 6 p\_\_ .18 \*12 p\_\_ .38

Table 4 shows that male students in Education, had the highest Self-Efficacy scores in non-traditional careers for school principal

(100 %) and the lowest score was reported for Physicist (22%). In traditional careers male education students had the highest results for Elementary School Teacher and Travel Agent (93%). In table 4 the lowest score was reported for Children's Clothing Designer (14%). Female students showed the highest self-efficacy scores in non-traditional career fields for School Principal (58%) and the lowest score was reported for Chemist, Physicist, and Electronic Technician (11%). In traditional career fields they reported the highest results for Elementary School Teacher (100%) and the lowest scores for Home Economist and Dental Hygienist (47%). Gender differences were evident in fourteen of twenty occupations. Males reported significant higher Self-Efficacy scores for Pilot, Lawyer, School Principal, Auto Mechanic, Judge, Chemist, Physicist, Architect, and Electronic Technician, all careers traditionally dominated by males. Females on the other hand, reported higher scores for Secretary, Elementary School Teacher, Children's Clothing Designer, Flight Attendant, and Travel Agent (table 4).

Chi-square analysis among Education students indicated that in non-traditional careers male students reported the strongest gender and Self-Efficacy relationship for School Principal ( $\chi^2 = 7.78$  with a level of significance of .005). The weakest relationship was found for Statistician ( $\chi^2 = .10$ ). Further, table 4 reported the highest relationship for Children's Clothing Designer ( $\chi^2 = 5.12$  with a level of significance of .02) and the lowest for Bank Teller ( $\chi^2 = .06$ ).

table 4

## EDUCATION

Level of Confidence for job requirements					
Occupations	Males n = 14		Females n = 19		x 2
	n	%	n	%	
<b>Non-traditional</b>					
Pilot	7	50	4	21	3.04*1
Lawyer	9	64	8	42	.92*2
School Principal	14	100	11	58	7.78*3
Auto Mechanic	5	36	4	21	.65*4
Judge	8	57	4	21	4.54*5
Statistician	3	22	5	26	.10
Chemist	5	36	2	11	3.06*6
Physicist	3	22	2	11	.75*7
Architect	8	57	7	37	1.34*8
Electronic Technician	4	29	2	11	1.76*9
<b>Traditional</b>					
Secretary	6	43	13	69	2.16*10
Elemen. School Teacher	13	93	19	100	1.40*11
Bank Teller	9	64	13	69	.06
Social Worker	12	86	17	90	.11
Insurance Clerk	7	50	12	63	.57
Children's Cloth. Design.	2	14	10	53	5.12*12
Home Economist	5	36	9	47	.45
Dental Hygienist	5	36	9	47	.45
Flight Attendant	9	64	15	79	.87*13
Travel Agent	13	93	15	79	1.21*14

\*1 p\_\_ .08    \*5 p\_\_ .03    \*9 p\_\_ .19    \*13 p\_\_ .35  
 \*2 p\_\_ .33    \*6 p\_\_ .08    \*10 p\_\_ .14    \*14 p\_\_ .27  
 \*3 p\_\_ .005    \*7 p\_\_ .38    \*11 p\_\_ .23  
 \*4 p\_\_ .42    \*8 p\_\_ .25    \*12 p\_\_ .02

The second instrumentation I employed was the 'Career Decision Making Self-Efficacy Scale' (CDMSES). In the ensuing paragraphs I am going to describe the results which the second scale yielded.

The means and standard deviation of scores obtained for each of the 50 items are shown in table 5. As shown, item difficulties range from 6.375 (representing "Some Confidence" in one's ability to perform a certain behavior) to 8.620 (representing "Considerable Confidence"). The most difficult item for the subjects to answer was "Make a decision and then not worry about whether it was right or wrong". The least difficult item was "Talk with a person already employed in the field you are interested in". The 10 most difficult items included questions from the following subscales: three "Occupational Information", four "Goal Selection", one "Problem-Solving", one "Planning", and one "Self-Appraisal". It is interesting to note that all five subscales were mentioned at least once. Table 5 also showed that overall, Geography male students showed the highest confidence levels on all five subscales ( $x=82.64$ ), whereas female Computer Science students showed the highest overall confidence levels for males as well as for females ( $x=83.15$ ).

The means, standard deviation, tests of significance scores for the five subscales are shown in table 5. Scores are shown separately for each of the 5 professional groups (Geography, Computer Science,

Nursing, Education) as well as males and females. As shown in table 5, the subscales means were fairly evenly distributed in Education (total group mean = 383.49) and Computer Science (total group mean = 388.99). The lowest total group mean ( $x = 364.39$ ) was reported for nurses and the highest total group mean ( $x = 400.3$ ) was shown for Geography. Further, table 5 showed that for the combined group of subjects ( $N = 81$ ), the highest mean score was obtained on the Self-Appraisal Scale ( $x = 77.96$ ). The lowest mean was found on the Problem-Solving Scale ( $x = 75.29$ ).

Among Computer Science students there is a significant difference in gender on three of the five subscales. On the Goal-Setting Scale a 'p value' of .025, on the Planning Scale a 'p value' of .004, and on the Problem-Solving Scale a 'p value' of .005 were reported (table 5). Hence, female students in Computer Science conveyed a gender difference with regard to Goal-Setting, Planning, and Problem-Solving.

The total CDMSE scores are also reported in table 5. The male total group mean = 372.9; and the female total group mean = 395.65). The total CDMSES-score was significantly greater than the total group mean of males, indicating that the female population was more confident in reaching career related decisions. The total group data, as shown in table 5, suggests overall gender differences in Self-Efficacy Expectations with regard to career decision-making tasks in

Self-Appraisal ( $p=.019$ ), Planning ( $p= .019$ ), and Problem-Solving ( $p=.032$ ).

table 5

Means, Standard Deviation, and tests of significance on the Career Decision-Making Self-Efficacy Scale

Scale	Males		Females		Test of significance		Total group	
	M	SD	M	SD	t	p	M	SD
<b>NURSES</b>								
(4 males, 12 females)								
Self-Appraisal	69	15.12	78.67	6.40	-1.242	.293	73.84	10.76
Occupational Information	66	23.70	79.33	9.63	-1.095	.346	72.67	16.67
Goal Setting	70.5	14.08	75.42	8.39	-0.861	.403	72.96	11.24
Planning	65.5	20.14	82.00	6.40	-1.611	.199	73.75	13.27
Problem-Solving	64.5	22.53	77.83	10.14	-1.145	.325	71.17	16.34
Group mean	67.1	19.12	78.65	8.19	-1.19	.31	72.88	13.66
<b>EDUCATION</b>								
(5 males, 19 females)								
Self-Appraisal	75.2	7.19	79.48	7.95	-1.089	.287	77.34	7.57
Occupational Information	81.2	4.15	77.42	12.79	1.089	.289	79.31	8.47
Goal Setting	73.4	15.73	75.89	8.76	-0.340	.748	74.65	12.25
Planning	75.6	10.19	77.11	10.73	-0.282	.780	76.36	10.46
Problem-Solving	75.4	4.39	76.26	9.2	-0.282	.780	75.83	6.80
Group mean	76.16	8.33	77.23	9.89	-0.018	.577	76.60	9.11
<b>GEOGRAPHY</b>								
(6 males, 10 females)								
Self-Appraisal	84.5	6.95	79.6	5.82	1.518	.151	82.05	6.39
Occupational Information	82.3	10.67	79.1	11.24	0.566	.579	80.72	10.96
Goal Setting	81.8	8.38	74.2	8.30	1.774	.097	78.02	8.34
Planning	83.7	7.66	77.7	10.29	1.225	.240	80.69	8.98
Problem-Solving	80.8	8.33	76.8	10.91	0.775	.451	78.82	9.62
Group mean	82.64	8.4	77.48	9.11	1.17	.304	80.06	8.86

table 5

Means, Standard Deviation, and tests of significance on the Career Decision-Making Self-Efficacy Scale

Scale	Males		Females		Test of significance		Total group	
	M	SD	M	SD	t	p	M	SD
<b>COMPUTER SCIENCE</b> (6 males, 10 females)								
Self-Appraisal	74.89	6.97	82.29	7.72	-2.011	.063	78.59	7.35
Occupational Information	73.67	10.03	83.43	7.96	-2.105	.053	78.55	8.99
Goal Setting	69.45	9.41	80.86	8.51	-2.505	.025	75.16	8.96
Planning	72.56	10.33	85.86	3.34	-3.626	.004	79.21	6.84
Problem-Solving	71.67	7.92	83.29	6.29	-3.270	.005	77.48	7.11
Group mean	72.45	8.93	83.15	6.76	-2.703	.026	77.8	7.85
<b>TOTAL GROUP</b>								
Self-Appraisal	75.9	9.06	80.01	6.97	-2.078	.041	77.96	8.02
Occupational Information	75.8	12.14	79.82	10.40	-1.419	.160	77.81	11.27
Goal Setting	73.8	11.90	76.60	8.49	-0.980	.335	75.20	10.20
Planning	74.3	12.08	80.67	9.44	-2.160	.019	77.49	11.20
Problem-Solving	73.1	10.79	78.55	9.14	-2.180	.032	75.83	9.97
Total Score	372.9	55.97	395.65	44.44	-8.817	1.244	384.29	50.66

## Chapter 5

# DISCUSSION AND CONCLUSIONS

### Summary of results

This study examined Self-Efficacy Expectancy levels and gender differences with regard to perceived occupational choices. The subjects were chosen from four different academic fields, Computer Science, Nursing, Geography, and Education. Most of those majoring in these fields are primarily interested in pursuing a career in their academic area. Computer Science is traditionally dominated by males, whereas Nursing has been traditionally dominated by females. The career of a Secondary Teacher is slightly more chosen by males and the study of Geography enjoys equal gender distribution (UVIC Statistical Office, 1991).

The Vocational Preference Inventory (VIP) was used as an instrument to determine whether there is a relationship between gender and perceived career choices. The Career Decision Making Self-Efficacy Scale (CDMSES) was employed to determine Self-Efficacy levels for 50 occupations related to career decision making. The CDMSES was used to determine Self-Efficacy levels and in what areas counseling interventions need to occur.

The results of the (VPI) supported my hypothesis that overall female students showed higher Self-Efficacy levels for traditional occupational fields, whereas male students displayed higher Self Efficacy levels for non-traditional occupations. The results show overall gender differences in Self-Efficacy expectancies with regard to traditional and non-traditional occupations.

Although overall gender differences in Self-Efficacy were found, no gender differences were found within the four career categories, in relationship to some occupations traditionally held by males or females. Thus, the postulated significance of low expectations of Self-Efficacy, as a limiting reason for women's career option may vary for different types of non-traditional and traditional careers. For example, occupations emphasizing mathematics, architect and electronic technician are still characterized as gender-typed, but the results show, that these occupations become in today's society more accessible to females. Conversely, occupations characterized as female gender-typed, such as Bank Teller, Social Worker, Elementary School Teacher enjoy today a more equal gender distribution. As the results show, for high status careers, like Pilot, Lawyer, women still, with the exception of the Geography group, expressed lower Self-Efficacy expectancy levels than their male counterparts.

The present results indicate that Self-Efficacy Expectations were related to the range of perceived career options. Individuals,

who reported greater Self-Efficacy related to non-traditional occupations were likely to have considered more non-traditional careers and fewer traditional careers than those reporting lower levels of non-traditional Self-Efficacy.

For the Career Decision-Making Self-Efficacy Scale (CDMSES) 33 male and 48 female student were asked to fill out a questionnaire. The subjects represented four occupational groups: Nurses, Education, Geography, and Computer Science. Five subscales of the CDMSES were employed to indicate various confidence levels in reaching career decisions. In general, the subjects indicated considerable confidence in their ability to perform the task necessary to career decision-making. The total Self-Efficacy score between female and male of all the five occupational groups differ significantly in terms of gender, indicating that female students were more confident in reaching career decisions. Of the four occupational groups, geography students (male and female students combined) showed the highest Self-Efficacy scores, whereas nurses showed the lowest overall Self-Efficacy scores.

### Historical Perspective: Traditional versus Non-Traditional Careers

Why are there two basic career directions, traditional and non-traditional? Thousands of years ago, during the time of the cave

dwellers, males shared the responsibility of providing their families with fresh meat, whereas the females had the task of making new clothes and looking after the children while the males were gone hunting. This clear division of labor among these early inhabitants of the earth was important to guarantee the well-being of the family and later of the future societies throughout the world for thousands of years.

As a result of this labour division, industrial societies have socialized males and females into fixed gender roles, at great cost of the individual's needs, talents, and skills. Millet (1970) states:

Male and Female are really two cultures. Implicit in the gender identity development which takes place through childhood, is the total sum of the parents', peers', and the culture's notion of what is appropriate to each gender by way of temperament, character, interests, status, worth, gesture, how he or she must think or behave to attain or satisfy the demands which gender places upon them.

(Millet p. 31)

But during the 1960's this old labour division was severely challenged by the female's movement towards greater gender equality. Females today resent being told what career they should

choose. They resent getting lower wages than men based on the grounds of gender. Many females of today encourage men to partake in the housework and in the raising of children. Moreover, they wish to be given the opportunity to start their own professional careers as well as being involved in the decision-making process of executive positions. But what are some of the obstacles that females face in today's working world?

Many females have to struggle with the gender stereotypes that society attaches to non-traditional occupations (occupations traditionally chosen by males like engineers, airline pilots, chemist etc.). A female, who is interested in a non-traditional career, has to fight gender discrimination, feeling of distrust, parental and peer pressure, lack of professional role models etc. Only a female who is convinced of herself and her professional abilities, who is self-efficacious and mentally strong, is likely to persevere in a male dominated career field. Those females who don't have a high degree of self-confidence and determination are likely to choose traditional working fields (careers traditionally chosen by females like waitress, social worker, home economist etc). Even though the result of this study revealed that more females today choose professions that, up until now, have been dominated by males, the majority of women actively engaged in the working force still choose traditional, stereotypically female careers, be it out of interest or lack of Self-Efficacy.

In general, gender stereotypes of the technologically advanced Western Societies are quite similar. The gender stereotypes for femininity include characteristics that can be categorized as expressive or communal. Women are for example warm, emotional, physically weak, dependent, passive, pretty; they are expected to be homemakers and mothers. The masculine stereotypes include characteristics generally associated with instrumentality or agency and include such attributes as intelligent, unemotional, physically strong, independent, active, aggressive, and scientific (C.G. Schau, 1974)

Theories on gender role socialization differ in terms of how gender roles are acquired and on the different implication of gender roles for males and females. Freud (1930), put forward the earliest theory of gender role socialization. His Psychoanalytic Theory is largely based on unconscious, instinctual, or maturational processes. Freud believed that the possession of a particular genital anatomy determines the different psychosexual development of males and females. In contrast to Freud's psychoanalytic theory, the Social Learning Theory (Bandura, 1969) emphasizes the rewards and punishment that children receive from gender appropriate and gender inappropriate behaviors, as well as the vicarious learning that observation and modeling can provide. Social Learning Theory located the source of gender typing in the different gender practices of the socialization community (Bem, 1975). Cognitive Development

Theory (Kohlberg, 1969) stresses the child's own behavior in the reinforcement of appropriate gender roles. This theory emphasizes the important role of self-categorization as a "boy" or "girl" rather than the passive acquisition of a behavioral set of rules reinforced by others. This self-categorization as female or male motivates him or her to value that which is seen as similar to the self in terms of gender. This gender-based value system in turn motivated the child to engage in gender congruent activities, to strive for gender congruent attributes and to prefer gender congruent peers (Bem, 1975). When do children become aware that there are careers that are traditional (careers chosen by females) and careers that are non-traditional (careers that are predominantly chosen by males)?

Gender stereotyping of the awareness of adult stereotypes of occupations starts as early as 30 months (Verner & Snyder, 1966). An interpretation of this research finding suggests that children have already incorporated adult occupational gender stereotypes into their early career plans. Looft and Snyder (1971) questioned first and second graders concerning their occupational goals. Boys indicated a larger variety of potential occupations than girls. Also, boys selected traditionally male professions (i.e. football players, medical doctors, pilots etc.). Girls' selection selection, on the other hand, was dominated by two occupations, nurses and elementary school teacher.

Today, the study of gender role socialization has received renewed attention largely as a result of the "Female's Movement". Due to this movement for greater gender equality, the fixed gender roles, which have dominated the work force for hundreds, even thousands, are slowly disappearing. Today, it is not uncommon to see females as truck drivers, lawyers, engineers, medical doctors and males as nurses or homemakers, all careers that not long ago were considered out of female's or male's career range possibilities. Despite the extensive changes in more gender equality, women still face job discrimination and fewer opportunities in the work force. A recent statistic revealed that females are crowded into just 20 of the Labor Department's 427 job categories (Lewin, 1984). Females are overrepresented in such career fields as secretary, waitress, nurses, elementary school teacher, most of which are low-paying professions. But females are underrepresented in such jobs as engineers, lawyers, medical doctors, college or university professors. Consequently, females, who select traditional female occupations, not only limit their career mobility, but also earn considerable less money than men (Lewing, 1984).

Two of the most centrally involved agencies in the gender role socialization of the child are the family and the school. In particular, it is the family who is a very powerful agent for gender role acquisition. There is growing evidence that parents treat their sons and daughters differently according to their gender. For example,

fathers play with their sons differently than mothers play with either their sons or daughters. Fathers engage in more physical play with their infant sons. Moreover, fathers are also likely to offer stereotypic toys to their sons and daughters (Jacklin & Maccaby, 1983). Such differential treatment between boys and girls will result in the perpetuation of gender role stereotypes and ultimately in a clear distinction of traditional and non-traditional working roles.

### Theories on how a career is chosen

Children are born with certain attributes or personality variables which later will affect their career choices (Roe, 1956). The type of personality the individual develops starts with the heredity disposition with which the child is born. Later, the individual's activities and interest lead to competency and finally to a disposition or willingness to engage in certain activities. These early determinants, such as bases for intelligence, special abilities, interest, attitudes and other personality variables can be seen as limiting rather than determining factors for the individual's personal development. The development of specific abilities, interest and personality variables is primarily determined by the direction in which the unconscious (psychic energy) comes to be expanded. These early directions of a child's unconscious is largely guided by frustration and satisfaction of a child when seeking out basic psychological needs.

Eli Ginzberg (1972) looks at career choice as a developmental process that starts in childhood and culminates in late adolescence. This process includes three stages: The fantasy, tentative, and realistic stage. The fantasy stage of career development lasts throughout childhood up to an age of 11. During the **fantasy stage**, children base their career aspirations mostly on imagination, without regard for their ability, talent, opportunity, or training. Young children may imagine themselves as pilots one week and doctors or lawyers next week. The **tentative stage** begins at puberty and lasts through high school from about 11 to 18 years of age. The adolescent starts now to make career choices based on their interest, abilities, and values. The **realistic stage** from 18 years of age on is a time of looking at career choices more realistically on the basis of the individual's self appraisal. This stage is divided into substages. During the exploration stage, the individuals gain greater knowledge of their strengths and weaknesses. Then, during the crystallization period, they make a commitment to a particular career. During the specification period they may further refine their choices to an area of specialization. For example, a teacher may decide to work as a career counselor and seek the appropriate training for it.

The concept of career maturity was introduced by Don Super (1980). Career maturity is a way of determining how well individuals are progressing toward their vocational identities. According to Super, the individual's self-concept is a major

determinant factor in achieving career maturity. Hence, high school and college students who have a firm personal identity and high self-esteem will readily explore career options and choose challenging occupations that involve hard work, personal growth, and risk. But students who are plagued by their own insecurities and doubts, feelings of unworthiness, and fear of failure are more likely to choose less challenging careers. In other words, certain personality types tend to gravitate towards certain careers. The saying that "**Birds of feather flock together**" is true for many careers. Individuals who are sociable and like children are likely to become teachers. Individuals, on the other hand, who have an affinity towards mathematics, inanimate objects, and who have a strong scientific orientation may choose the career of a computer scientist. Thus, people with certain personality traits tend to flock together in the same careers.

John Holland (1966) came up with certain personality types. He categorized people into six different types: Realistic, Intellectual, Social, Conventional, Enterprising, Artistic. The personality types represent typical individuals who grow up in our cultural environment. Each type is portrayed in terms of a theoretical model called the 'model orientation'. This 'model orientation' is a cluster of characteristic behavior, psychological needs, self-concepts, life history, vocational and educational goals, aptitude and intelligence. A person's resemblance to each of the six personality types Holland

terms 'personality pattern'. The following are descriptions of Holland's six personality-occupational types. These descriptions are only generalizations. None will fit any one person accurately. In fact, most people's interest combine all six types to some degree.

**REALISTIC:** "The realistic person copes with with his/her physical and social environment by selecting goals, values, and tasks that entail the objective, concrete valuation and manipulation of things, tools, animals, and machines: and by avoiding goals, values, and tasks that require subjectivity intellectualism, artistic expression and social sensitivity and skill. The realistic person is masculine, unsociable, emotionally stable, materialistic, genuine, and oriented to the present".

**INTELLECTUAL:** "The intellectual type copes with the social and physical environment through the use of intelligence: He/she solves problems primarily through the manipulation of ideas, words, and symbols rather than through his/her physical and social skills. The intellectual person is characterized by such adjectives as analytical, rational, independent, abstract, introverted, cognitive, critical, curious, and perceptive".

**SOCIAL:** "The social individual copes with the environment by selecting goals, values, and tasks in which the person can use his/her skills with an interest to help other people. The social person is

typified by his/her social skills and the need for social interaction. The characteristics of a social individual include: nurturing, capacity for status, dominance, and psychological mindfulness, concerned with the welfare of others in need. He/she relies on his/her emotions and feelings rather than his/her intellectual resources".

**CONVENTIONAL:** "A conventional person copes with the social and physical environment by selecting goals, tasks, and values that are sanctioned by custom and society. His/her approach to problems is stereotyped, practical, correct: it lacks spontaneity and originality. The conventional person is well controlled, neat, sociable, and creates a good impression, somewhat inflexible and conservative".

**ENTERPRISING:** "The enterprising person copes with his/her world by selecting goals, values, and tasks through which he/she can express his/her adventurous, dominant, enthusiastic, energetic, and impulsive qualities.. The enterprising person is characterized by his/her persuasive, verbal, extroverted, self-confident and aggressive attributes".

**ARTISTIC:** "The artistic person copes with his/her social and physical environment by using his/her feelings, emotions, intuitions, and imagination to create art forms or products. For the artistic person problem-solving involves expressing his/her imagination and task through the conception and execution of his/her art. The artistic

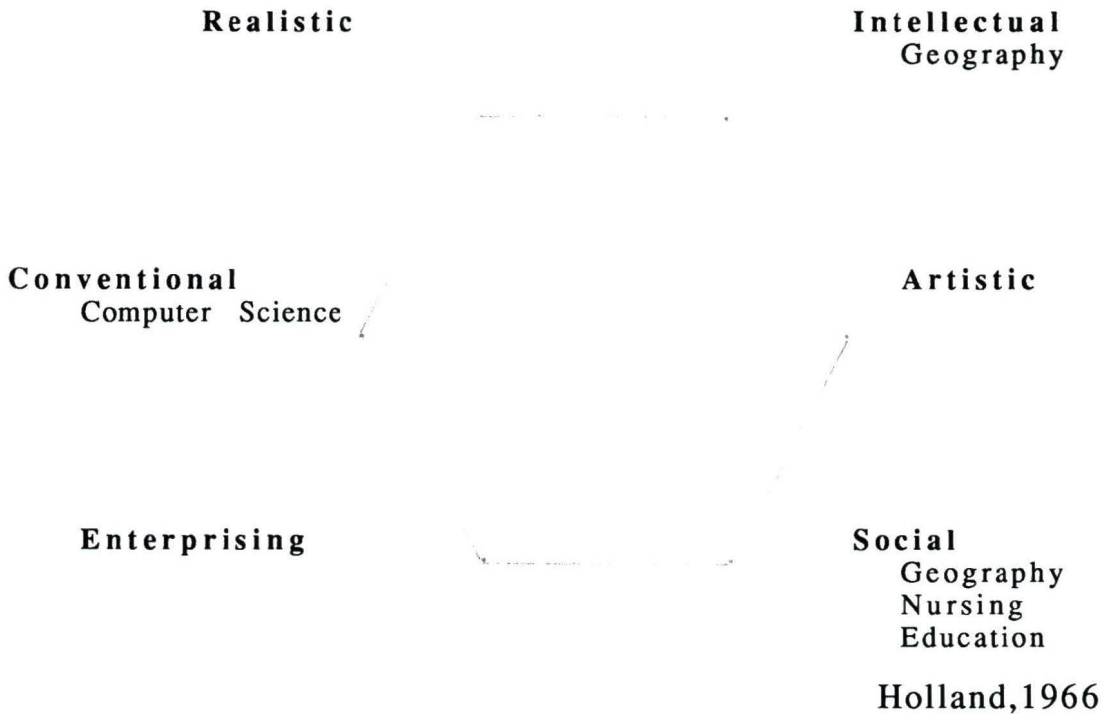
person is characterized further by his/her complexity of outlook, independence of judgement, introversion and originality" (Holland, 1966).

The above discussion of personality types can also be applied to working environments. A realistic person is likely to seek out a realistic working environment, because such an environment is consistent or congruent with the individual's personality variables. For example, a social personality-type person is unlikely to choose a Computer Science career because his personality-type is incongruent with the computer environment. People search for environments and careers that will permit them to exercise their skills and abilities and to allow them to be who they are. A mechanic (Realistic type) for instance, would feel uncomfortable and incompetent in both a business office (conventional environment) and an art studio (artistic environment). Consequently, enterprising people look for enterprising environments, intellectual types seek intellectual environments and so forth. Thus, career choice can be seen as an extension of a person's personality and environment.

Holland's Hexagonal Model attempts to define the psychological resemblances among personality types and environments and their interaction. Figure 2 below shows the position of the four career fields, Education, Computer Science, Nursing, and Education in the Hexagon's model in relation to each other. The shorter the distance

between any two careers, the greater their similarity or psychological resemblance. In contrast, careers which are wide apart on the hexagonal model are very different from one another.

figure 2



According to this model, the three career fields, Education, Nursing, and Geography (Social type), as compared to Computer Science (Conventional), are far apart, indicating that Computer Science bears no great personality and environmental resemblance to either Education, Nursing or to the Social type Geographer. The intellectual type Geographer, however, is wide apart from either of

the three career fields, indicating that the intellectual type Geographer rates very different on the personality as well as on the environmental scale.

What type of environments do individuals, who are interested in the four career fields, seek? The Computer Scientist (Conventional type) seeks an environment which is characterized by tasks and problems that requires systematic, concrete, routine processing of verbal and mathematical information. The person who chooses a career in Education, Nursing, or in Geography (Social type) seeks a working environment which requires the ability to interpret and modify human behavior and an interest for caring and communicating with others. The individual who chooses a career in Geography (Intellectual), seeks out a working environment that requires either abstract and creative abilities rather than personal perceptiveness. Holland's personality types and hexagonal model provide us a measure of understanding career choice and self-efficacy.

### SELF-EFFICACY

Self-Efficacy, the belief in one's ability to perform a given task well, is influenced by the personality type of the individual and what kind of working environment he or she feels comfortable working in. Students in Education, Computer Science, Geography, and

Nursing chose their particular fields, because these career fields closely resemble their personality types and working environment profiles. The Education students, for example, feel confident and self-efficacious teaching, enjoy the classroom atmosphere and will eventually develop skills of competency in their chosen field.

How does a person develop an interest in a particular career? An individual whose parents for example are pilots, might often take their children flying, exposing them to activities that revolve around flying (i.e. airplane maintenance, instrument reading, weather forecasting, construction of airplanes, aerodynamics, flying etc.). Thus, these activities may generate an 'interest' in flying. This interest in flying may then lead to 'competency'. The individual gains experience in the skill of flying and eventually he or she may develop a strong feeling of competency. In other words, the individual's level of Self-Efficacy Expectancy, the belief in his or her abilities, will be very strong. Finally, the person's 'disposition' towards his/her life is being shaped by the career. The individual, who chooses a career as a pilot, develops a certain value system, and gains a particular perspective of the world around him or her. This newly gained sensitivity in the person, as triggered off by his or her career, influences the personality traits of the individual.

The results of study reveal that many females generally have lower Self-Efficacy levels for non-traditional careers than males.

Today, most non-traditional careers are still male dominated, which can act as a deterrent for many females to enter these career fields. The working environment plays an important role in a person's career decision. If an individual doesn't feel comfortable in a working environment, he or she is unlikely to choose this particular occupation. A female for example, who would like to become an engineer, will be working mainly with males. Thus, for many females, working with all men seems uncomfortable or even threatening. They might experience discrimination, sexist language, lower salaries etc. Hence, females with a low level of Self-Efficacy, who are not convinced of their abilities to perform well in a non-traditional career, are likely to choose a career field that offers them a more comfortable and safe work setting. They may likely choose a working environment in which they don't have to put up with a job rivalry between males and females.

The lack of non-traditional female role models may be another major deterrent for many females to enter male dominated occupations. In the case of the female pilot, she was likely exposed to flying early in her life. Maybe she was just terribly interested in a career as a pilot. Moreover, she may have had parents who supported her in her non-traditional career pursuit, or she may have had a parent who is also a pilot, thus acting as a powerful role model for her. However, many females of today often lack role models, who will encourage them to start non-traditional careers. A female, who

thinks of starting a career as a lawyer, may not know of any female lawyers who could serve her as a role model and who could help getting her career started. Observing another female, for example in their work as a lawyer, can influence a woman's Self-Efficacy level. The opportunity for vicarious learning is likely to increase this prospective female lawyer's determination to also pursue a non-traditional career. Today, however, the lack of such non-traditional career role models, may act as a further deterrent for many females not to enter non-traditional work settings.

As the results of this study demonstrate, females scored higher than males on the Self-Efficacy scale for traditional careers. There may be many females, who are simply more interested in traditional careers and who don't show an interest to start a new professional trend in non-traditional careers for females. These females don't see themselves as starting professional careers that may keep them away from their families. Hence, their priorities in life are set differently. They may well have high self-efficacy levels for non-traditional careers but show no interest in pursuing such careers.

### Implications to school guidance

Adolescents, whose beliefs about themselves cause them to avoid certain career pursuits which they are actually capable of, would benefit from exploring the sources of those beliefs (i.e.

socialization experiences). Using the Career decision Making Self-Efficacy Scale (CDMSES) that was used in this study, the counselor can easily establish the weak areas of the individual's career search that need to be attended to (i.e. Self-Appraisal, Problem-Solving, gathering of occupational information, Goal Setting, Planning). Through encouragement and support, the helper can strengthen the adolescent's Self-Efficacy belief about his capability of performing well in certain career pursuits that the adolescent initially believed outside of his or her capability range.

The lower Self-Efficacy expectations of the female subjects with regard to non-traditional career fields may be due to a lack of professional opportunities provided for them by the school to prove themselves in those occupations. Also, it may be the lack of encouragements from teachers, parents, or peers, to pursue a non-traditional career in an area they feel competent and interested in. School interventions could be directed towards increasing the range of career options from which female students can choose from. An area of further improvement is the subject of 'career development'. Career development at the high school level ought to be expanded and updated to today's high standards and expectations. It is not adequate anymore to wait until students approach the counselor with their career concerns. The school must bring the different careers and their professional expectations and opportunities to the students. Today's learning institutions are encouraged to implement

the subject of 'career development' into the existing curriculum to counteract the confusion that many students may experience when it comes to making career decisions. The 'career development' teacher could attempt to promote the notion of gender free career choice by informing students of the wide range of career opportunities that are open to males and females alike. One of the main objectives of 'career development' may be to look at gender free careers and not break them into two groups, traditional and non-traditional. Moreover, the instructor could discuss careers in terms of their individual tasks rather than looking at the whole career and its social status. Looking at the individual career components might shed an entirely different light on an occupation and could stimulate interest in the students. Conversely, it could also make students aware, that after knowing the individual parts of a career, they don't want to pursue the career of a plumber, architect, or bank teller etc.

To offer adolescents a thorough career guidance program as part of the school curriculum, schools need professional career counselors. There is no sense in conveying to the students a superficial career picture by a non-expert, who just happens to have a spare block to take on the career development course. But someone, who is an expert in the field, can help to dispel the notion of traditional and non-traditional careers. Moreover, a further challenge for the career counselor lies in encouraging female

adolescents to enter male dominated fields. To hire professional career counselors and to set up a career curriculum at the high school level is only possible with adequate funding. The challenge of the schools is to convince the School Board of the importance of such a program and to emphasize that successful completion of academic subjects is not enough to start a professional career. To apply what students learned in school and to find out their strengths and weaknesses, to explore who they are and what kind of life styles they would eventually like to lead is a monumental task adolescents face in today's world. Thus, a school career guidance program could make it easier for many adolescents to reach these difficult career and life decisions.

### Implications for parents

Parents, who wish to raise gender aschematic children in a gender schematic world are faced with a difficult task. They have to teach their children a belief system that undermines the current value and belief structure of society. The struggle that there are no "male or "female careers but only "careers" has to be started very early in a child's life. The first step parents can do to eliminate gender stereotyping is by role modeling. They can take turns making dinner, bathing the children, driving the car. The parents can ensure that regardless of gender their children play with cars, dolls, wear both

blue and pink clothing, have boys and girls as playmates. When children are still quite young, parents can further inhibit gender stereotyping by actually censoring books and television programs. At the present time, however, such censoring practices would eliminate many children's books and most television programming.

With consistent education children at home and at school can learn that there are no gender borders in choosing a career. They can enter careers, such as nurse or pilot, without first having to fight against a social belief system that certain careers are meant for males or females only.

### Limitations

The results of the present study indicate that a strong relationship between careers and gender exist. In general, females still gravitate towards traditional vocational pursuits, whereas males tend to gravitate towards non-traditional careers (Ellis & Sayer, 1986). The results also suggest a positive relationship between Self-Efficacy and career choice. However, the small female sample size for Computer Science and Engineering, and male sample size for nursing diminishes the certainty regarding the significance of the relationships. In some study fields, like Engineering for females or nursing for males, not more subjects could not be found. Further studies, using greater number of subjects, could further substantiate

the relationships found in this study. Difficulty also lies with generalizing the results of the present study to other populations, like to a non-university population, or a population with different cultural backgrounds, like Chinese, East Indian, European etc.

It is difficult to say whether the socialization process is the sole important factor in determining Self-Efficacy Expectation levels with regard to traditional and non-traditional career decisions. It could also be that in general, adolescents want to maintain the gender status quo of certain career choices, thus avoiding difficulties on the work place. It could also be questioned whether removing social barriers to certain careers would increase the interest for both genders to participate more fully in those gender schematic careers. It should also be remembered that the subject pool reflects the population, traditions and biases of North American society. For example, Physician is a non-traditional occupation for females in North America, while in the Soviet Union Physician is considered a traditional occupation for females.

## Recommendations for Future Research

This present study, which focused particularly on Caucasians university students, could be extended to include different socio-economic groups. It is quite possible that in lower socio-economic groups, the need to earn a living precedes other factors, like interest or talent of an individual. Hence, individuals may be efficacious to enter high income careers, but don't have the money for the schooling to prepare them for these occupations. Further, it may be interesting to include different cultural groups in this study, like Chinese, East Indians, Europeans etc. to examine how these ethnic groups perceive women and men in careers that are determined by gender. We might get a completely different career picture based on the cultural background of individuals.

Further research examining the consequences of career decision-making Self-Efficacy Expectations and the effectiveness of counseling interventions that are designed to increase those expectations is necessary. Finally, research that investigates the relationship of strength of Self-Efficacy Expectations to persistence in pursuing a desired career goal is needed; for example, females possessing strong career-related Self-Efficacy Expectations may be more likely to persist in their career pursuits when confronted with such obstacles as discrimination or sexual harassment etc. Thus, the concept of self-efficacy may be helpful in expanding the range of

career options and also in facilitating success and satisfaction in career pursuits.

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Title of Thesis: Comparison of Career-Related Self-Efficacy Expectancy Levels of third and fourth-year Male and Female University Students.

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September 29, 1991