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**GENDER DIFFERENCES IN PREDICTORS OF CAREER SUCCESS:
AN EXAMINATION OF PROFESSIONALS IN THE
HIGH TECHNOLOGY INDUSTRY**

by

MICHELLE KEALEY, B. Comm. (Honours)

A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfillment of
the requirements for the degree of

Master of Management Studies

School of Business
Carleton University
Ottawa, Ontario
July 16, 1999
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AN EXAMINATION OF PROFESSIONALS IN THE
HIGH-TECHNOLOGY INDUSTRY**

**submitted by Michelle Kealey, B.Comm. (Hons.)
in partial fulfillment of the requirements for
the degree of Master of Management Studies**

Thesis Co-supervisor

Thesis Co-supervisor

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September, 1999**

ABSTRACT

The purpose of this research was to examine the predictors of career success, specifically those factors that can explain the different attainments of men and women in the high-tech industry. The primary objective involved enhancing existing research by focusing on Melamed's gender-specific model of career success (1995). The model tested examines three sets of predictors: human capital attributes, career choices and organizational opportunity structures. This model examined four additional variables: rate of salary change, training and development, senior women and mentoring. This model was evaluated using questionnaire data collected from a sample of professionals working in the high technology industry that attend ZoneFive marketing forums. The study found significant gender differences in the relationship between career success, lateral moves and training and development. The best predictors of men's salary were their education, job experience, and mobility across organizations. The best predictor of women's salary was mobility across organizations.

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CHAPTER 1: INTRODUCTION

Over the past decade, there has been a significant increase in the labour force participation rate of women. Discouragingly, the number of women who make it to the top is still small. This phenomenon has provoked numerous studies on the career development of women and men. Researchers have sought to discover what are, and what causes these disparities between men's and women's careers. The literature on careers has investigated the determinants of career success – salary, managerial level -- and movement up the hierarchical ladder. Studies have revealed that differential factors do in fact influence the career success of men and women within an organization (Stewart & Gundykunst, 1982).

Studies have shown that men's and women's careers are very different (Powell, 1988; Larwood & Gattiker, 1987; Stewart & Gundykunst, 1982). The existence of a "glass ceiling", an invisible barrier that limits women's progress to top management levels in large organizations, has been supported by many studies on women in management (Stroh, Brett, & Reilly, 1992; Tokunaga & Graham, 1996; Lyness & Thompson, 1997). In an effort to understand why there are such a limited number of women holding positions in upper management, some studies have examined predictors of success for both sexes. Studies have found that there are certain factors that are better predictors of career success for women than men (Stewart & Gundykunst, 1982; Tharenou, Latimer, & Conroy, 1994).

The purpose of this research was to examine the predictors of career success, specifically those factors that can explain the different attainments of men and women working in the high-tech industry. The primary objective involved enhancing existing research by focusing specifically on Melamed's gender-specific model of career success. This research examined some important variables that were not tested in the model developed by Melamed (1995b).

This research is distinct to previous research, as it examined the careers of men and women working in an area of management within the high technology industry. The high-technology industry is growing rapidly, which suggests promising career outcomes for both men and women working in this industry. Of particular interest are the levels of management attained by women and the choices and strategies used to reach such levels. To date, no research has been found that has examined predictors of career success of individuals working in the high technology industry in the area of marketing. Through this research, insight was gained on specific factors needed for predicting career success and the relative importance of each for men and for women. This knowledge can help organizations develop suitable career development programs used to counsel both men and women on how to achieve or enhance career success. Finally, this research will give insight into the possible career choices that both men and women can make in order to reach higher levels of success within their career.

CHAPTER 2: LITERATURE REVIEW

Researchers have examined careers from many different perspectives. Throughout the literature, the fit of traditional career theory to women's careers has been examined and the need for a separate career theory for women has been much-debated (Gallos, 1989; Marshall, 1989; Gutek & Larwood, 1987). Gender differences in career progression and the level of hierarchy attained have been investigated extensively (Stewart & Gundykunst, 1982; Tharenou, Latimer, & Conroy, 1994; Tokunga & Graham, 1996; Lyness & Thompson, 1997). The limited number of women at the top of organizations has resulted in a large number of studies on career advancement and barriers to women (Andrew, Coderre & Denis, 1990; McKeen & Burke, 1992; Adler, 1993; Melamed, 1995a). The question of particular interest to researchers is: "what factors determine career success?"

Determinants of managerial advancement have not been well established throughout the literature. Some researchers have sought to find out specific factors that are predictors of career success, such as, education (Howard, 1996), developmental opportunities (Ohlott, Ruderman & McCauley, 1994), mentoring (Dreher & Ash, 1990), family status (Landau & Arthur, 1992), gender (Landau & Arthur, 1992; Hurley, Fagenson-Eland & Sonnenfeld, 1997) and mobility (Forbes & Piercy, 1991; Stewart & Gundykunst, 1982, Rosenbaum, 1979). However, some authors have managed to examine a range of personal and situational predictors of career success such as; education level, marital status, organizational and job tenure, development opportunities, organizational structure and public sector employment (Melamed, 1996; Tharenou and Conroy, 1994; and

Gattiker & Larwood, 1990). A limited number of studies have examined the development of career patterns of men and of women (Lépine, 1992; Larwood & Gattiker, 1987).

The following will be an extensive examination of the existing research on men's and women's careers. First, the differences that exist between men and women in their careers will be discussed. Second, the definition of career success will be provided, as there are many different ways in which career success can be studied. Third, three categories of predictors will be examined: human capital attributes, organizational variables and career choices. Fourthly, characteristics of high-tech organizations will be discussed with emphasis on the information technology workplace in the 1990's. Lastly, the emerging role of women in high-tech organizations will be examined.

2.1 Differences between Women's and Men's Careers

The lack of strong theory concerning women's careers has limited our understanding of the differences between men's and women's career paths. The problem, which is apparent throughout the literature, is that most of the theories developed are based on men's career patterns. (Gallos, 1989; Powell, 1988; Gutek & Larwood, 1987). Existing career theories do women an injustice because the definitions and understandings of career and career success are still heavily based on men's work experiences and assumptions about the primacy of work to identity (Gallos, 1989). The difficulty is that women's careers are often affected by factors that do not affect men to the same extent.

Gallos (1989), and Gutek and Larwood (1987) have suggested the need for a separate theory on women's career development.

The research literature reveals that women's careers are a great deal more complex than men's careers (Powell, 1988; Gutek and Larwood, 1987). It has been argued that this complexity stems from differences in socialization, attitudes, and role expectations (Diamond, 1987). Women face a different set of opportunities and a more compounded set of problems than those seen by men (Powell, 1988). Thus, certain factors may have greater influence on women's career success than men's career success. Larwood and Gattiker (1987) suggest four reasons why men and women's careers are different and likely to remain different: 1) stereotypes about "proper" sex roles, 2) the willingness of both husbands and wives to accommodate themselves to each other's careers, 3) the differentially defined parent role for men and women, and 4) the increased constraints women are faced with in the workplace as compared to men. Other factors that may have an impact on women's career success are discrimination, training & developmental opportunities, and work-family conflict. Research has shown that these factors become barriers to women's career progression within an organization. Each will be examined in turn below.

2.1.1 Occupational Sex Segregation

Occupational sex segregation is an important factor contributing to the differences men and women experience throughout their careers. Sex segregation exists when females and males are not similarly distributed across occupations (Powell, 1988). Research has

shown that women are more likely to be employed in traditional female jobs, such as, nurse, elementary school teacher, librarian or social worker. Men on the other hand, are more likely to be in traditional male positions, such as engineer, lawyer, or doctor (Armstrong and Armstrong, 1994). In addition, women are found more often in staff positions; whereas, men tend to occupy line positions within organizations. Sex segregation influences career patterns by sending a message about which occupations are more appropriate for males and which are more appropriate for females, thereby, significantly affecting women's career choices (Powell, 1988).

2.1.2 Sex Role Stereotypes

Societal expectations regarding proper sex roles at work and at home influence women's decision to have a career and the level of success attained. Traditionally, men's role in society is to acquire human capital to *provide* for a family, whereas, women's role is to help their husbands, and stay at home to *raise* the family (Landau & Arthur, 1992). The traditional female role encourages the development of personality traits, attitudes and behaviour patterns that contradict those of managers. Specifically, women following the traditional role tend to adopt caring and supportive behaviours, lack confidence, attribute success to external factors and have lower expectations for career success (Melamed, 1995).

Sex role stereotypes constrain women, as some women may feel that a career must come second to a family. In Morrison, White and Van Velsor's (1987) study of executive women, they found that the biggest choice for the women studied was about setting

priorities for career versus family. It was found that women in non-traditional roles are forced to make choices that may exclude some of their needs and wants.

Research has shown that there are not only tough choices to make, but also significant consequences of managerial and professional women's career priority patterns. Burke and McKeen (1993) found that the sample of women studied, as a whole was more career-family than career-primary. The career-family women were more likely to have partners and children, spend more hours on household duties, work fewer hours per week, and be in lower levels of management. The study revealed that these women suffered consequences associated with placing family ahead of their career, as they reported significantly lower job satisfaction, job involvement, career satisfaction and future career prospects, and greater intention to quit (Burke and McKeen, 1993).

2.1.3 Gender Discrimination

Gender discrimination has been shown to be another major factor hindering the career development of women managers. The "glass ceiling" is an invisible barrier, located in upper management, that blocks women from entering into top positions. Wentling's (1996) study of women managers revealed that because they were women, they had advanced more slowly, had to work harder to prove themselves, were not taken seriously or were treated with less respect and in some cases were banned from certain jobs. This study reveals that women's progress within an organization unfortunately does not necessarily reflect their true ability.

Melamed (1995a) examined the gender gap in career success of men and women and found that although job-relevant human capital attributes, organizational factors, demographic attributes, career choices and labour market economic forces explained a large amount of the variance in career success, over 55% of the gender gap in career success was attributed to sex discrimination. Cox and Harquail (1991) found that women experienced lower salary progression than men of comparable education, performance, and experience. Similarly, Stroh, Brett and Reilly (1992) found that although the women were equal to the men studied in regards to career interruptions, education levels and family situation, they still lagged behind with respect to salary progression. These findings suggest that being female tends to have a depressing effect on career success. Discouragingly, these studies indicate that gender bias within organizations is prevalent.

2.1.4 Career Motivation

The reality of sex discrimination in the workplace, the difficulty of managing multiple roles, and the challenge of making role transitions may lead women to feel less career motivated (Gallos, 1989). Gallos (1989) states that women find that the costs associated with the traditional male career pattern are too great. Therefore, women have tried to forge careers that provide opportunities for meeting both personal and professional goals. Women are seeking balance (Dyke and Murphy, 1998). A study conducted for “Working Women” found that for many women, success is about options and achieving a balance between work and family (O’Toole, 1993).

2.1.5 Career Progression

The number of promotions an individual receives has been of great interest to researchers examining women's careers. It is apparent that the opportunities for promotion are different for women than for men. The literature reveals some positive findings with regards to the number of promotions women are receiving. Stewart and Gundykunst (1982) found that women received more promotions although they occupied significantly lower positions in the organizational hierarchy. Cox and Harquail (1991) found that women did not differ significantly from men on total promotions but had significantly fewer management positions. Stroh, Brett & Reilly's (1992) study revealed similarly that women were receiving promotions at the same rate as the men. However, they were not moving as far up the ladder as men were.

The problem that is apparent in organizations is not necessarily the number of promotions women and men are receiving; rather it is the end result. Women are receiving a similar number of promotions as men, but are not advancing to the same levels in the hierarchy. Stewart and Gundykunst (1982) described this phenomenon as an organizational strategy of "pacification by promotion". In fact, the hierarchical level attained by women and men is very different. Women often do not reach the upper levels of the hierarchy, but instead bump up against what has been termed the "glass ceiling" (Lyness and Thompson, 1997).

2.1.6 Training & Developmental Opportunities

Developmental opportunities have been found to be an important factor in preparing both men and women for upper-level management. Key job assignments lead to high-level jobs, and place high-potential managers in positions of visibility (Ohlott, Ruderman and McCauley, 1994). The implication for women is that if they do not experience developmental assignments, they may be less prepared than their male co-workers for handling future upper-level management jobs.

Although both men and women experience developmental challenges, women typically are not given the same training and developmental opportunities as men (Tharenou, Latimer and Conroy, 1994). Studies have revealed some specific differences: men are less likely to assign challenging tasks to female subordinates than to male subordinates (Mai-Dalton and Sullivan, 1981), women are more often moved from line to staff positions (Powell, 1980), and women's jobs provide less visibility with supervisors and fewer chances to make important contacts (Rosen, Templeton and Kichline, 1981). Ohlott, Ruderman & McCauley (1994) found that men experienced some greater task-related developmental challenges, such as, high stakes work, managing business diversity and handling external pressure. On the other hand, women experienced fewer developmental opportunities, stemming from obstacles they faced in their jobs, specifically, lack of personal support. The lack of developmental opportunities provided to women, such as, developmental job assignments, has been suggested to be one of the reasons so few have been promoted to senior management positions.

2.1.7 Geographic Mobility

The opportunities for movement within a career are different for men and women. A study of female and male managers who had previously relocated found that after controlling for years in the workforce and organizational tenure, the male managers' career histories reflected significantly more geographic moves than did the women's (Stroh, Brett & Reilly, 1992). Lyness and Thompson (1997) found that women had less international mobility than men. Women's lack of geographic mobility is an obstacle to their career advancement, as research has shown that mobility may be a prerequisite for promotion to higher levels of management (Lyness and Thompson, 1997; Melamed, 1996). These gender differences in geographic mobility may cause women to experience less satisfying future career opportunities.

2.1.8 Career Strategies

Empirical studies show that women do use different career strategies than men. Schwoerer (1990) found that women were less active in career management strategies than men. Dyke (1993) found that men placed more emphasis on social relations and networking, personal initiative and effort, unique skills that distinguish one from the group, and personal characteristics. The women studied placed more emphasis than men on image and appearance. Gould and Penley (1984) revealed that males were more likely to use the strategy of "extended work involvement" and females were more likely to report use of "seeking guidance".

The interviews with 20 women managers conducted in Dyke's (1993) research yielded some insight into the existence of gender differences in career strategies. Some of the women interviewed believed that women's limited access to self-promotion techniques available to men, such as obtaining a mentor, and the higher visibility of women managers as a result of under-representation, were some reasons why women adopted different career strategies than men. Self-promotion techniques are those techniques used by individuals to market themselves within the organization as candidates for promotion (Dyke, 1993). The career strategies employed by women can hinder their career advancement opportunities. Dyke (1993) found that women's self-promotion activities are less accepted than men's. The attitude that self-promotion is not appropriate for a woman may be a barrier for those trying to be considered for a promotion.

2.1.9 Access to Mentors

Women have fewer formal and informal opportunities than men for developing mentoring relationships. Ragins and Cotton's (1991) study of 510 executives in research and development organizations found that women experienced more barriers to gaining a mentor than men. Women were more likely than men to report that access to mentors was restricted, that mentors were unwilling to enter into relationships with them, that others in the organization would disapprove of the relationship and that either a mentor or others would interpret their approach as sexual. However, women and men did not significantly differ on reported fears about initiating a mentoring relationship (Ragins & Cotton, 1991). These barriers to obtaining a mentor are compounded by the lack of female mentors (Noe, 1988).

2.1.10 Networks

Many important business decisions are not made solely inside the organization, but on the golf course, and at social clubs and gatherings. These informal networks are important to consider, as they are often associated with career success and upward mobility (Brass, 1985). Research has shown that women do not have equal access to these informal networks (Melamed, 1995a). One explanation suggested for women's limited access to informal networks is that men intentionally exclude women from the "old boys network" in order to maintain their dominance within the organization (Albrecht, 1983). This situation has left women feeling that they have to continually fight to be recognized for the work that they do (Ohlott, Ruderman & McCauley, 1994).

Brass (1985) investigated the interaction patterns of men and women in an organization and the relationship of these patterns to perceptions of influence and promotions. Brass (1985) found that although women networked more than men, they were not well-integrated into men's informal networks including the organization's dominant coalition; that is, the ten persons in the organization who were most often named as influential. Brass's (1985) study reveals that women's limited access to these informal networks is a barrier, as they have less access to important resources, valuable information, and support which often comes with inclusion in such networks. In addition, they are at a great disadvantage as promotions were found to be significantly related to interaction with men's networks and dominant coalition networks.

2.1.11 Inequities Concerning Compensation and Salary

In 1990, considering both part-time and full-time worker's average income, women were paid just 60 per cent of what men were paid (Armstrong and Armstrong, 1994). Part of this wage gap can be attributed to the domestic work that keeps many women from working year-round, full-time in the labour force (Armstrong and Armstrong, 1994). The wage gap in Canada is increasing in higher salary ranges, as the percentage of white men earning \$40,000 and more is increasing more rapidly than for any other group (Leck, St. Onge and Lalancette, 1995). Jacobs (1992) examined the earnings among managers and found that the wage gap in earnings narrowed between males and females during the period of 1970 to 1988. Although this study shows that the women managers were not simply given managerial titles but commensurate pay, the sex gap in wages within management continues to exceed that in the labour force as a whole (Jacobs, 1992).

Sex disparities in compensation have been reported for managers and executives. Lyness and Thompson's (1997) study on work experiences of executive women and men found that female executives received fewer stock options and less authority than male executives with comparable education, performance ratings, and who have attained positions in the management hierarchy.

2.1.12 Career Patterns

Career patterns are often linked to the stages in an individual's life. These stages are reflective of changing developmental tasks, career concerns, activities, values and needs which emerge as one passes through various ages (Hall, 1976). Career patterns are

indicative of the critical choices a person must make through their life. A career can be viewed as a path through time that reflects both the individual's work related needs and the society's expectations for certain activities (Vardi, 1980). Studies have examined career patterns by evaluating how women prioritized their commitment to their career versus their family (Burke and McKeen, 1993). Career patterns are reflective of the organizational environment, the individual's experiences and the events and choices in the personal life of the individual (e.g. those related to childrearing, and to the professional goals they have set) (Lépine, 1992).

There is little common ground in the literature on women's and men's career patterns, except that they tend to be strikingly different. Marshall (1989) notes that the ideal type of career, as defined by society, is based on a male model emphasizing a continuous, linear approach to occupational attainment, and this pattern does not reflect women's experiences and goals. Men's career patterns are more predictable, reflecting their predominantly linear progression to the top. Women's career patterns are often varied and lack predictability (Lépine, 1992). Women's career histories typically reflect more career interruptions than men's, as women take more leaves of absences and more total months of leaves (Lyness & Thompson, 1997). The differences in the career patterns of women indicate that women are taking more responsibility for the family and the home as compared to men. Lépine (1992) found that successful women followed a "fast track" career pattern. Her results suggest that for women to be successful, they have to be committed to their career, be open to mobility and delay having a family.

This examination of the differences between women's and men's careers suggests that the under-representation of women managers is a function of societal expectations, educational barriers and corporate practices. The major gender differences found were that women are segregated into traditional female jobs that offer limited career advancement, and that society continues to expect women to stay at home and men to work. Women as compared to men have few developmental opportunities, less geographic mobility and are not offered the same compensation. The fact that women are acquiring promotions to the same degree as men is somewhat encouraging. However, the research continues to support the notion that women are starting at lower positions in the organization and are still hitting the glass ceiling. These barriers may decrease women's motivation and may result in women following less successful career paths.

It is apparent that most of the differences presented are seen as factors detrimental to women's career success. It is necessary to examine those factors that are barriers to women's success, in order to gain a better understanding of those factors that are better predictors of career success for women than for men. The purpose of this research is to examine gender differences in predictors of career success in the high-tech sector; thereby, enhancing existing models. The following section will define career success and will review the literature on predictors of career success.

2.2 What is Career Success?

The term career refers to the individually perceived sequence of attitudes and behaviors associated with work-related experiences and activities over the span of the person's life

(Hall, 1976). Careers are constantly changing and developing and thus, can include a series of related jobs within an organization or different jobs within various companies. This series of positions represents the development of a career (Gutek and Larwood, 1987). Career development implies that the series of jobs represents some progress, either up a corporate hierarchy or toward an increasingly large salary. Gutek and Larwood (1987) explain that the more one's career progresses by managerial or salary level, the more it is judged to be successful.

Throughout the literature career success has been defined in two ways. Most studies have evaluated career success based on objective criteria, such as managerial level, career progression, salary and job title (Veiga, 1983; Landau & Arthur, 1992; Schneer & Reitman, 1993; Tharenou, Latimer & Conroy, 1994; Melamed, 1996). Others have studied careers based on subjective success, such as how a person feels about his or her career accomplishments and prospects for future achievements (Van Eck Peluchette, 1993). Some authors suggest that career success consists of both objective and subjective criteria. However, as Gattiker and Larwood (1990) point out, few have examined both simultaneously.

2.3 Predictors of Career Success

Over the past decade, researchers have tried to determine those factors that influence career patterns and individual's career success. Melamed (1995b) brings a number of these factors together in a relatively comprehensive model of determinants of success. Melamed's (1995b) gender-specific model of career success examines three groups of

predictors of career success: human capital attributes of the employee, career choices made by the employee, and structural features of the organization. Melamed (1995b) found that the paths to career success vary between men and women, thus, supporting the need for gender-specific models. Results indicated that women's achievements were related to merit, lack of domestic responsibility, and favourable features of the organizational and occupational opportunity structure. Men's career success was found to be related to personality characteristics and opportunities within society.

Melamed's model provides a useful framework for examining the determinants of career success. The following discussion will use Melamed's framework as a basis for reviewing the research on determinants of success. Variables that were absent from Melamed's model, but which were found to be important in other research will be incorporated into the discussion where appropriate.

2.3.1 Human Capital Attributes

Studies examining predictors of career success have found that human capital attributes explain some variance in the career success of men and women. Melamed (1996) found that the set of human capital attributes had the highest predictive power, in comparison to career choices and organizational opportunity; thereby, explaining 22.8% of the variance in salary and 15.8% of the variance in managerial level. Gattiker and Larwood (1990) found that demographic variables seem to be of substantial importance in explaining the variance in management level. Some human capital variables that have been examined throughout the literature are: mental ability, personality traits, education, training and

development, job experience, marital status, and family status. The impact of these variables on career success will be examined in the following sub-sections.

2.3.1.1 Mental Ability

Mental ability affects career success, as it enhances the pace of acquisition and thoroughness of job-related knowledge, enhances innovation and quality of priority setting and modifies motivational states that are essential for high performance (Melamed, 1996). Studies support the strong effect mental ability has on career success (O'Reilly and Chatman, 1994; Dreher and Bretz, 1991; Hunter, 1986). Dreher and Bretz (1991) studied the relationship between mental ability and the performance of new job recruits and found that mental ability contributed to the explanation of some of the variance observed in later career success. O'Reilly and Chatman (1994) found that MBA's who had both high cognitive ability and motivation earned higher salaries, obtained more rapid pay increases, and received more promotions in the early years of their careers. Melamed (1995b) examined gender differences in the effect mental ability has on career success and found that mental ability was not significant in predicting either relative salary or managerial level of both sexes. One explanation for these contradictory results could be differences in the operationalization of the variable mental ability, as different tests were used to measure cognitive ability.

Although these findings suggest that mental ability can affect the career success of both sexes, it is expected that women will benefit more from it, as they are assessed under more strict criteria than men (Melamed, 1995b). Women have to rely on their merits,

skills and ability; whereas, men can depend on their personality and informal networks as means of progression (Melamed, 1995b).

2.3.1.2 Personality Traits

High performance in managerial jobs may be influenced by personality traits. Personality traits that complement managerial jobs can help an employee to progress through the hierarchy. To be successful, managers should have social skills that facilitate interaction and rapport with others, confidence to stand by decisions, and a mixture of toughness, dominance and assertiveness to gain approval for their own decisions and suggestions (Melamed, 1996).

Melamed and Bozionelos (1992) studied the personality profiles of 132 managers and compared them to norms for the British adult population. It was found that both female and male managers scored higher than the general population on intelligence, dominance, imaginativeness, self-assurance and extroversion. Although this study revealed that male and female managers displayed very similar personality characteristics, personality has been found to have a stronger effect on men's career success. Melamed (1995b) revealed that men's relative wages were related to personality; whereas, women's were related to job-relevant human capital, home environment and job function. The findings suggest that men who are more extroverted and independent will be more successful than women who possess the same personality traits.

While these studies provide some insight into what determines career success, they present problems for women. Statham (1987) examined gender differences in managerial styles and found that respondents perceived that women were both task and people oriented, while men appeared image engrossed and autonomy invested. Respondents reported a strong preference for their gender-appropriate model and misunderstanding with those using the alternative approach. These findings suggest that women are at a disadvantage. Women who adopt a female management style are judged to be inadequate and are less likely to succeed as managers since they are usually assessed by men who are likely to have a strong preference for their own approach to management. However, women who assume a more masculine management style are not guaranteed acceptance, as they are often faced with problems in that their subordinate males with traditional attitudes may be resistant and create difficulties at work.

2.3.1.3 Education

It is evident that attaining a higher level of education has a strong impact on career success. Stroh, Brett and Reilly (1992) examined the career progression of male and female managers employed by twenty Fortune 500 corporations. They found that education was the only human capital variable that predicted salary progression. Howard (1986) found that the contribution of a college education to career progression was equal to one managerial level. When examining managerial advancement, 31% of managers who had attended college had advanced beyond middle management, as compared to only 3% of those without a college education. Melamed (1996) found that education was a significant predictor of salary, but not managerial level.

There is some evidence of gender differences in education as a predictor of career success (Tharenou, Latimer & Conroy, 1994; Stewart and Gundykunst, 1982). Tharenou, Latimer and Conroy (1994) found that education level was more related, albeit weakly, to men's managerial advancement than to women's. Although the women had attained a higher level of education than the men, men's education had more influence on their managerial advancement than women's education. Stewart and Gundykunst (1982) found that education worked more to the advantage of men than women, as the number of promotions for males increases for every additional year of education, whereas the opposite effect was found for women. Interestingly, education explained more of the variance in hierarchical level for females than for males. Melamed's (1995b) study revealed contradictory results, as education was found to have a stronger positive association with women's earnings than men's earnings. Melamed's findings suggest that the women studied were being measured more on their skills, abilities and qualifications, which may not have been the case in the previous studies.

The level of education attained can be a meaningful determinant of managerial advancement, rate of promotion, and salary level. However, women are faced with another challenge, as the same educational level attained by both men and women is not necessarily weighted equally. It is evident in some studies that men are getting a better return on their education than women. Altogether, the effect of education on men's and women's career success is unclear from the literature.

2.3.1.4 Training and Development

Little empirical research has been conducted on the impact of training and development on career success. Training should enhance advancement because it increases individuals' knowledge, skills, credibility, and credentials (Ragins and Sundstrom, 1989).

Tharenou, Latimer and Conroy (1994) used confirmatory modeling to test models of situational and individual influences on women's and men's managerial level. The advantage of this study is that it enhances our understanding of those determinants that have an indirect effect on managerial advancement; whereas, most studies examine only the direct effects. Tharenou, Latimer and Conroy (1994) found that training and development led to managerial advancement; however, it was of more advantage to men than to women. This finding is not surprising as women reported having less training and development than men, particularly internal training courses, and fewer conferences or industry meetings. The gender differences for training found in this study are consistent with Ragins and Sundstrom's (1989) explanation that organizations regulate access to training as part of a pattern of tracking that grooms men for powerful positions (Tharenou, Latimer and Conroy, 1994). Men are thought to gain more skills and knowledge from training than women do, and they gain skills and knowledge that are more relevant to managerial work, thus, becoming better prepared for working in management (Tharenou, Latimer and Conroy, 1994).

2.3.1.5 Job Experience

The number of years in one position has been found to be detrimental to a person's career and the ability to move into higher managerial positions (Gattiker & Larwood, 1990; Cox and Harquail, 1991; Judge et al, 1995). Job mobility tends to increase career success when job changes develop relevant experience (Cox and Harquail, 1991). Hurley, Fagenson-Eland, & Sonnenfeld (1997) found that the longer an individual had served in a line position the less likely he or she was to be promoted into top management. Cox and Harquail (1991) found that average job tenure had a significant negative effect on total number of promotions, management promotions and managerial level. The negative effect of job tenure on promotions is probably a reflection of being plateaued in one's position. Thus, remaining in the same position over a long period of time can cause stagnation (Melamed, 1996; Larwood & Gattiker, 1987).

Instead of looking specifically at the effect of organizational tenure or job tenure, some researchers have examined the combined impact of work experience on career success. Tharenou, Latimer and Conroy (1994) examined the influence work experience has on managerial advancement. Work experience was measured as the number of years in an organization, number of years in a position and continual full-time status since entering the workforce. Results indicated that work experience influenced training and development, with the coefficient being more positive for men than women. Unexpectedly, work experience did not directly affect managerial advancement for women or men. These findings suggest that work experience indirectly facilitates men's and women's career success.

2.3.1.6 Family Structure

The increase in the number of married women with children in the work force has resulted in researchers studying the relationship between family structure and both managerial advancement and salary level. Family variables can either facilitate or hinder career development depending on the employee's gender and individual circumstances. Marital status, often serving as a proxy for interrupted work experience and family responsibilities for women, has been one of the variables hypothesized to explain the gap in earnings between men and women (Landau and Arthur, 1992). The following will examine the relationship between family variables, such as marriage and children, with career success.

Some research indicates that being married is positively associated with career success (Pfeffer and Ross, 1982; Melamed, 1996). Pfeffer and Ross (1982) reported that married managers held higher positions and received higher remuneration packages compared to their single peers. Landau and Arthur (1992) found that individuals who were never married, regardless of gender, earned less than those who had spouses. Although Landau and Arthur's (1992) study revealed no gender differences, differential effects of marriage to men's and women's career success have been found in other research. Melamed (1995b) found that marriage was related negatively to women's salary, while marital status had no effect on men's earnings. When managerial level was examined, Melamed (1995b) found that marital status was positively associated with men's managerial level, while it had no effect on women's.

The literature shows that the presence of children is a significant predictor of salary level (Schneer & Reitman, 1993; Landau & Arthur, 1992), and managerial level (Gattiker & Larwood, 1990). Studies that have examined a gender effect have shown that the presence of children has a differential impact on men and women. Landau and Arthur (1992) found that the presence of children was positively related to salary for men, but not related to earnings for women. Schneer and Reitman (1993) found the same results with respect to the effect of children. Melamed (1995b) found that for men's earnings and managerial level, children had no effect at all; whereas, for women, parenthood was related negatively to their career success.

Tharenou and Conroy's (1994) study found that whether a woman had a spouse and/or children, the home situation did not appear to impact advancement. This inconsistency with previous research may be due to the characteristics of the sample studied; more specifically, the women were found to be more frequently single and childless.

Melamed (1996) suggests that marriage and parenthood may facilitate career success for men by providing a degree of stability to employers. The opposite effect occurs for women, where women who decide to have a family are often seen as having discontinuous careers due to the demands of children. Women with families are often viewed as not being committed and not investing in their careers, and as a result, attain lower salary and managerial levels (Rosenbaum, 1984). Overall, research has revealed that single women without children are likely to receive higher salaries and attain higher levels of management; whereas for men, being married and having children may

positively affect their earnings and the level of management attained. The positive correlation of men's salary to parenthood can be explained using the distributive justice theory. The distributive justice perspective proposes that wages should be allocated on the basis of individual contribution and need. According to this theory, married males, as family breadwinners, would have greater needs than single males, and thus, would earn more wages (Pfeffer and Ross, 1982).

2.3.2 Organizational Variables

The structure of the organization and the degree to which it provides opportunity, has been found to be a determinant of career success. The following will examine the effect organizational structure has on career success with specific emphasis on: male hierarchy, functional area and organizational size.

2.3.2.1 Gender Distribution

A male managerial hierarchy, the extent to which the managerial hierarchy of an organization chiefly consists of men, is thought to be a critical structural feature influencing men's and women's career success (Tharenou and Conroy, 1994). Those women who are few in numbers among male peers are often seen as tokens, a symbol for all women (Kanter, 1977). Token women often experience more stress and pressure to perform. Women do best in mixed-sex environments, as tokenism in the absence of external intervention, tends to keep women in the position of token with low opportunity and low power (Kanter, 1977).

Research demonstrates how the proportional representation of women in positions of power affects professional women's gender identity at work. Ely (1995) found that in organizations in which few women were in positions of power, sex roles were more stereotypical and more problematic. Most women in male-dominated firms experienced some discomfort with the sex-role requirements in their firms, and relative to women in sex-integrated firms, rated themselves less favorably in relation to requirements for success overall (Ely, 1995).

Tharenou and Conroy (1994) found that male hierarchy had a greater negative influence on women's managerial level. More female managerial hierarchies were associated with women's but not men's greater managerial levels. The immediate working environment and the degree to which it is predominantly male reduces women's career encouragement and women's opportunities to gain the necessary training to advance up the hierarchy (Tharenou, Latimer, & Conroy, 1994). Contrary to expected results, Tharenou, Latimer and Conroy (1994) found that the predicted path from male hierarchy to training and development was not significant for women and unexpectedly, negative for men. The lack of impact for women may have occurred because the female managers studied developed survival techniques to the effects of working in a predominantly male environment. It is expected that working in a male hierarchy will hinder women's career success, while facilitating men's career success.

2.3.2.2 Functional Area

Research shows that the functional area of the position may play an important role in career success. Positions can be classified into two different categories: line or staff. The distinguishing factor between these classifications is the degree to which they affect key strategic decisions. Positions in line departments are in the chain of command and relate directly to strategic objectives of the organization; whereas staff positions tend to support the operation of the organization and are considered less important (Melamed, 1995b).

Some studies have shown that having experience in line departments is generally considered to be more valuable than experience in staff positions (Forbes and Piercy, 1991; Cox and Harquail, 1991). Cox and Harquail (1991) found that line experience had a marginally significant positive effect on management level. Forbes and Piercy (1991) examined the relationship between advancement in the firm and the initial job classification. Forbes and Piercy (1991) found that those who started in administrative (staff) positions began to move up early; however, their progress seemed to level off quickly. The authors concluded that those who entered the firm in technical positions (line) were very highly represented in management. Forbes and Piercy (1991) concluded that the initial functional area was more important to managerial advancement than promotions received in the early stages of one's career. A technical background meant a longer wait before upward movement; however, for some this was followed by rapid advancement within their career (Forbes and Piercy, 1991). It is expected that individuals in line positions will have greater career success than those in staff positions.

There is some empirical evidence of gender differences in the effect functional area has on career success. Melamed (1995b) examined the effect of organizational structural features on career success and found that holding a position in a line department was negatively correlated with women's relative wages, while it had no effect on men's earnings. When managerial level was used as a measure of career success, a line position was positively associated with both men's and women's career success. Larwood and Gattiker (1987) examined the relationship between line status and hierarchical success of older and younger men and women and found contradictory results when managerial level was used as a measure of career success. Larwood and Gattiker (1987) found that line positions were correlated to hierarchical success, and the relationship was found to be statistically significant for men but not for women. In fact, an early line position for older women was inversely related to professional status, a variable found to be positively related to hierarchical success among older men (Larwood & Gattiker, 1987). These findings suggest that line status is irrelevant to women's career success; whereas, it facilitates men's career success.

2.3.2.3 Organizational Size

The size of an organization as a predictor of career success has not been examined extensively throughout the literature. Researchers have argued that larger firms have a greater number of job vacancies available and thus, have more promotion opportunities (Whitely et al, 1991). Cox and Harquail (1991) found that employees in large organizations lagged behind employees in small organizations regarding their managerial

responsibility. However, they gained more promotions. Judge, et al (1995) found that executives who worked in large companies earned higher salaries than executives who worked in small or unsuccessful or private firms. Melamed (1995b) examined the gender effect of size of the organization on career success and found a significant negative correlation with men's earnings, but no association with women's relative wages. Melamed (1995b) found a positive correlation between women's managerial level and organization size; whereas, no effect was found for men. These findings suggest that working in larger organizations may facilitate career success.

2.3.3 Career Choices

Career choices are those decisions made by employees that affect their career paths, progress and success. Researchers have found that a substantial amount of the variance in career success is determined by factors external to the individual or factors that are not under their control. However, studies also reveal that individuals have the freedom to make career choices that have strong implications for their career success (Gattiker and Larwood, 1990; Melamed, 1996). The type of choices individuals face include which job to apply for and which organization and industry to join. These choices can impact career success, as the negative effect of wrong choices is difficult to remedy (Melamed, 1995b). The ideal choice for an individual is to enter an occupation that provides opportunity, as opposed to being in a dead-end job that is not congruent with their personality characteristics.

Occupational choice is viewed as the most important career decision and one of the most influential determinants of career success. Certain types of choices concerning which job to apply for seem to have predictable effects. Larwood and Gattiker (1987) found that corporate ascent was facilitated by entering the corporate ladder at the highest level possible. Melamed (1995b) argued that choice of an occupation is important for women; however, its impact is likely to be more visible for men. Women's choice to avoid dead-end jobs, to enter powerful positions and prestigious jobs, to move towards more male and managerial oriented jobs should enhance their success. However, the challenge for women who choose prestigious, typically male-oriented jobs is that barriers are often put in their way, which are likely to hinder their career success (Melamed, 1995b).

The effects of career choices upon objectively measured career success have not been examined extensively in the literature. Gattiker and Larwood (1990) found that career choice variables were statistically significant in accounting for the variance in positions in top management and type of industry. Melamed (1996) examined the effect of human capital attributes and organizational structure on career success and the degree to which they are mediated by career choices. Melamed (1996) found that career choices account for a large part of the impact that human capital attributes have on career success. More specifically, attributes such as mental ability, education, work experience, and being single facilitate entry into professional jobs and influence decisions regarding tenure and job changes. Education and mental ability improve the quality of career choices by opening channels to professional jobs and to frequent moves between positions (Melamed, 1996). However, marriage, parenthood and home responsibilities restrict

career options, forcing some women to make the decision to postpone marriage and children in order to achieve career success (Lépine, 1992).

Organizational structure has been found to affect the career choices of an individual (Melamed, 1996). The opportunity structure of the organization affects career-move decisions. Melamed (1996) found that employees in large public sector organizations tend to move frequently between prestigious jobs but remain with the same organization for a long time. These findings suggest that larger public organizations tend to reinforce long tenure and achievement of success through a series of jobs with the same employer, rather than by frequent change of employers (Melamed, 1996).

The following section will examine career choices that have been of most interest in the career literature, which include: organizational tenure, career interruptions, mobility, and the impact of mentors.

2.3.3.1 Organizational Tenure

Organizational tenure is often considered a measure of experience and a surrogate for managerial skills, with longer tenure being associated with greater managerial ability (Hurley, Fagenson-Eland & Sonnenfeld, 1997).

Research has shown that the longer an individual works within a company, the better his/her earnings will be (Stroh, Brett and Reilly, 1992; Landau and Arthur, 1992;

Melamed, 1996). However, long organizational tenure may be detrimental to corporate ascent. Gattiker and Larwood (1990) found that years in the firm correlated negatively with level in the organization. These findings suggest that in the sample studied, employees in high level positions had been with the company a shorter time than their lower-level counterparts. This supports other research that has indicated that promotions are more frequent at the beginning of one's career (Rosenbaum, 1984). Contrary to past research, Hurley et al (1997) found that compared with middle level managers, the members of the top management group were more likely to have remained with their organization for a long time. This positive relationship between organizational tenure and advancement into upper management indicates that this organization rewards loyal employees. These findings suggest that the true relationship between organizational tenure and promotion into top management positions may be variable across organizations and industries.

Some empirical research has shown gender differences in the effect length of organizational tenure has on hierarchical level. Stewart and Gundykunst (1982) found that length of tenure was positively related to hierarchical level for males, but was negatively related for females. These results suggest that women were penalized, as the longer they stayed with the organization the less likely they were to advance up the corporate hierarchy. The opposite occurred for men, as the longer they stayed with the firm, the more likely they were to advance. No gender differences were found when number of promotions was examined. The length of time spent with an organization had the same impact on the number of promotions received for males and females. The

longer an individual works for an organization the more likely he or she will be promoted, as they have acquired more work experience.

2.3.3.2 Career Interruptions

Traditionally, men are expected to have uninterrupted career paths, while women are expected to interrupt their careers for family considerations. A recent study found that the primary reasons for men's loss of employment were restructuring and personality mismatch, while the primary reasons for women were restructuring and childbearing (Schneer and Reitman, 1997). Whatever the reason for career interruptions, organizations view them as an indication of an employee's commitment and loyalty to the firm. Employees who interrupt their career are often penalized, as studies indicate that they receive lower salaries, fewer promotions and rarely reach senior levels of management (Stroh, Brett and Reilly, 1992; Schneer and Reitman, 1997).

The effect of career interruptions is important, as the view of managerial career success as an uninterrupted climb up the corporate ladder no longer fits the realities of many managers (Schneer and Reitman, 1997). Schneer and Reitman (1997) examined longitudinal data on career paths of MBAs to determine the consequences of early and mid-career gaps on career success. They found that early career gaps have a negative impact on income through mid-career for both men and women. MBAs with early career gaps earned 18% less income than MBAs with continuous employment histories even after controlling for differences in field, experience, hours worked and gender. Gaps in mid-career also revealed an income penalty for both men and women. Early gaps have a

more severe impact on management level for men than for women. Mid-career gaps lead to lower management level attainment for women but not for men. The reason for the lack of an effect for men was not clear. The negative effect on level for women could be a result of the women with interrupted career paths encountering a “glass ceiling”. These findings suggest that career interruptions affect career success, regardless of whether the gap is in early or mid-career.

2.3.3.3 Mobility

Mobility has been found to positively affect a person’s career success in that it increases a person’s visibility, helps employees to build networks, and permits transfer to more powerful positions (Melamed, 1996). Employees can enhance their career prospects by changing positions (intra-organizational mobility), changing employers (inter-organizational mobility), relocating geographically, and by moving between industries (Ellis and Henemen, 1990; Melamed, 1996; Murrell, Frieze and Olson, 1996).

Vardi (1980) suggests that the mobility of individuals among organizational jobs is constrained by their personal attributes and by their behaviour. The variance in mobility patterns is related to individual variables, such as age, commitment and effort. In addition, career mobility can be constrained by the nature of the organization, such as technology, structure, size and degree of unionization (Vardi, 1980).

Research suggests that mobility impacts career success, where certain moves can be detrimental to hierarchical level. Ellis and Henemen (1990) examined impact of career

moves on career success for mature male managers and determined that not all moves lead to success. The authors found that hierarchical level was negatively related to inter-firm mobility and that changing industries was positively related to current base salary. The implication is that managers who are willing to move across industries received premium salaries. However, in changing employers they paid a price in the form of reduced chances of reaching top management. This study supports Forbes and Piercy's (1991) findings that changing firms does not help individuals get to the top. An explanation for the negative effect is that top managers are often promoted from within the organization (Forbes & Piercy, 1991).

Research has found that lateral transfers can negatively influence career success. Murrell, Frieze and Olson (1996) examined the impact of work and non-work related mobility on salary, promotions, job satisfaction and organizational commitment among 671 male and female managers over a 7-year period. Non-work related mobility strategies are those career moves that remove the individual from the work environment (leaves of absences). Work-related mobility retained the individual in the work environment. The authors found that lateral moves had a negative effect on overall change in salary. They concluded that those with frequent lateral moves experienced a significant loss in salary increases compared to those who did not move. In fact, individuals with frequent lateral moves had received \$3000 less salary compared to those who did not move.

Other research has suggested that changing positions within an individual's career is negatively associated with wages and positively associated with managerial level (Melamed, 1996). Melamed (1995b) examined gender differences and found that job changes were significantly negatively associated with men's relative wages, whereas they had no effect on women's earnings. When career success was measured as managerial level, job changes were found to be associated more with women's than with men's managerial level (Melamed, 1995b).

There is some empirical evidence that geographic mobility predicts career success. Gattiker and Larwood (1990) found that top management position correlated positively with geographical moves and negatively with change in career. Individuals who indicated that a geographical move was an important career choice, and who had not changed careers, were typically higher on the corporate ladder (Gattiker & Larwood, 1990). Contrary to these findings, Ellis and Henemen's (1990) study did not conclude that geographic mobility was a significant predictor of career success. The difference in these findings in the latter study may be due to the fact that the sample studied was cross-organizational. Thus, it is likely that inter-organizational differences in the criteria for advancement may explain the non-significant relationship between geographic mobility and career success.

2.3.3.4 Mentoring

Mentoring is an interpersonal relationship that can influence career success, specifically career progress (Whitely; Dougherty; Dreher, 1991). Although, mentoring has been

recognized as a means for fostering career development and advancement up the corporate ladder, it remains an informal practice in most organizations.

Dreher and Ash (1990) examined the linkages between a global measure of mentoring experience, gender and four outcome variables related to monetary or economic success. They suggest two ways a mentoring relationship with a senior manager may be beneficial to the career success of a protégé. Firstly, the mentoring system provides protégés with access to very important social networks. Secondly, the protégé acquires important managerial skills by observing an effective senior manager.

Specific functions that mentors provide have been found to affect protégé career outcomes. Scandura (1992) found that social support was significantly and positively related to managers' salary level. Vocational mentoring, otherwise known as coaching, was found to be significantly and positively related to managers' promotion rate. These findings suggest that not only does mentoring affect career success, but specific dimensions of mentoring have more influence on specific career outcomes of protégés.

Mentoring has been linked to higher salaries, more promotions and higher managerial levels. Dreher and Ash (1990) examined gender differences in mentoring experiences and the degree to which mentoring is differentially associated with career outcomes of men and women in managerial and professional occupations. Dreher and Ash (1990) concluded that individuals experiencing extensive mentoring relationships reported receiving more promotions, had higher incomes, and were more satisfied with their pay

and benefits than individuals experiencing less extensive mentoring relationships. However, the study found that although mentoring relationships may contribute to career success, they did not account for the observed income differential between men and women.

The existence of a mentor has been shown to help women move up the organizational hierarchy (Wentling, 1996). Morrison, White and Van Velsor (1987) suggest that having a mentor may be even more important for women: 100% of the executive women in their study reported having had a mentor while only 55% of the executive men had had a mentor. Similarly, Wentling (1992) found that of the women who had been mentored, 90% indicated that their mentors significantly influenced their career and had they not been provided substantial help, their career progress may have been hindered. Thus, not having a mentor may be particularly problematic for women.

2.4 Characteristics of High-Tech Organizations

The high technology society has created a new style organization that has brought into being a different reality, a way of handling jobs that is sometimes confusing (Kanter, 1983). Kanter (1983) outlines five unique characteristics of high-tech organizations. Firstly, these new style organizations emphasize entrepreneurial behaviour and taking initiative. People are functioning in an environment in which there is a great deal of inter-dependence and overlap and perhaps multiple reporting relationships (i.e., more than one boss). There is a great deal of local autonomy within high-tech organizations and a culture of change, an expectation that jobs will change frequently and people will

move from job to job. These firms have a great deal of employability security. More specifically, employees do not fear loss of employment, as high-tech organizations are generally in a growth phase. Lastly, these new organizations allow people to cut across the hierarchy to get what they want. These findings suggest that high-tech is a different world, it is more empowering but it also puts more burden on the individual to understand how to get and use power. Power in this environment means the capacity to mobilize people to get their cooperation, to get what you need and to get the job done; it is power in the service of performance (Kanter, 1983).

2.5 Information Technology Workplace in the 1990's

High salaries, high turnover, and a shortage of qualified skills characterize the high-tech sector in the 1990's (Yourdon, 1996; Garner, 1998; Fafard, 1998). The growing sophistication and complexity of modern-day software engineering tools and processes increases the need for talented, educated, and well-motivated software professionals. Surprisingly, many high-tech organizations do not concentrate on the essential aspects of good 'peopleware' practices, such as; recruiting, hiring, training, rewarding, retaining and motivating good people (Yourdon, 1996).

Companies expect more from their information technology (IT) professionals. Employees are expected to specialize in four or five skills, be creative, innovative, and have the mind-set to apply technology to business goals (Garner, 1998). Training continues to be a major concern for employer and employees in the high-tech field. In some organizations, software professionals are receiving little investment in ongoing

professional development, which may lead to obsolescence and being replaced by a younger, more up-to-date person. In more creative high-tech organizations, employer and employee look for ways to jointly invest in professional development. In some cases, the software professional must take personal responsibility for their training and development (Yourdon, 1996).

In the high-tech sector, inter-organizational mobility leads to higher salary. Fafard (1998) examined the long-term effects of inter-organizational mobility in the high-tech sector and found that the three most common reasons why IT professionals' leave their jobs are: the desire to earn more money, the lack of technical progression and an incompatible supervisor.

IT professionals can increase their earnings by changing employers, but it has been argued that this form of mobility might have some consequences on future career success. Employers still want to see that candidates have demonstrated a commitment to their work and progressed in their careers (Fafard, 1998). Though two years in a position has been found to be too short, more than six years in the same position with the same employer – without any additional responsibilities may be too long (Fafard, 1998). Many IT positions keep workers intellectually challenged for many years; however, technical support departments expect their technicians to move into a new position within their organization after eighteen months (Fafard, 1998).

Interestingly, the IT workforce consists of workers who want more than just high salaries. According to a recent Computerworld online salary satisfaction survey of 500 information technology professionals, respondents indicated that salary was important, but they would trade a big bonus for flextime, greater intellectual challenge and training (Cole-Gomolski, 1998). IT managers and staff alike agreed that their salaries had increased; however, for some the pay was not enough to compensate for long working hours, high stress and tremendous responsibility (LaPlante, 1998). The result was that for some individuals in high-tech, career success is defined by subjective measures, rather than earning a high salary.

As high-tech organizations remove layers of hierarchy, there are fewer opportunities to follow the traditional management route. In order to retain qualified employees, some high-tech organizations and information systems departments are introducing new career paths in business applications that appeal to the non-manager personality types (Engler, 1998). Overall, the literature reveals that changing employers, job tenure and investment in training and skills are important predictors of career success in high-tech.

2.6 Emerging Role of Women in High Technology

The high-tech sector is a growing, fast-paced industry with tremendous opportunities, as demonstrated by the increase in the employment rate of computer programmers and systems analysts. From the fourth quarter of 1992 to the end of 1997, jobs for computer programmers and systems analysts in Canada rose 92% from 139,000 to 267,000

(Statistics Canada, 1998). While this industry is characterized by opportunities, little research has been conducted on careers in high-tech.

Despite the dynamic image of the high-tech industry, it is still a domain ruled by the old boys' network. A recent Statistics Canada report on data collected from the Labour Force Survey found that only about 26 per cent of programmers and analysts in Canadian high-tech are women. What factors lead to women's career success in the high-tech industry? Russell (1989) interviewed five women who have succeeded in high-tech. The women revealed five ways to be successful in high-tech: capitalize on change, stay flexible, possess team-building and lifelong learning skills, and become role models. Malaspina (1996) found that woman engineers looked to sales and marketing positions for people-oriented career opportunities. Kanter (1983) proposed that understanding power and influence in high-tech organizations is critical to women's success. It is expected that mobility, mentoring, and functional area will be important to women's career success in high-tech.

2.7 Summary

Studies have shown that women's and men's careers are different. These differences are attributable to the fact that women face a different set of opportunities and a more compounded set of problems in their careers than those seen by men. In an effort to understand gender differences, researchers have studied separately what predicts men's and women's career success.

It is evident throughout the literature that human capital attributes of the employee, career choices made by the employee and structural features of the organization affect men's and women's career success. Research on predictors of career success reveals some dominant themes; the impact of these factors on career success differs for men and women. Firstly, human capital attributes appear to have a more powerful influence on men's career success than women's. Not only do males benefit more from their education and personality, but also they are better rewarded for some of the choices they make in their career. It might be expected that the structural and opportunity features of the organization affect women and men similarly, but as the research shows, in many instances that is not the case. The research does reveal some intriguing findings, that being that a mentor has a more positive influence on women's career success than men's. The help of a more senior employee seems to be a factor that significantly enhances a woman's ability to move up the corporate ladder.

Although research exists on determinants of career success, little is known about men's and women's career success in high technology. Since not all studies examine the same variables, it remains unclear what factors are necessary to facilitate women's and men's career success. The main objective of this research was to enhance existing research by focusing on Melamed's gender-specific model of career success. This research examined what predicts women's and men's career success in the high-tech sector.

CHAPTER 3: MODEL

The purpose of this research was to examine the predictors of men's and women's career success in the high technology industry. The main objective of this research involved enhancing existing research by focusing on Melamed's gender-specific model of career success (1995b). Melamed developed a model that measures the effect of human capital attributes, organizational structure and career choices on career success for women and men. This research drew upon Melamed's gender-specific model of career success, as it integrates many of the factors examined in the literature.

Melamed's (1995b) study demonstrates the need for a gender-specific model of career success. Melamed's (1995b) study revealed that the relationships between career success and some of the variables within the three groups of predictors are moderated by gender. More specifically, some groups of factors appeared to work to the advantage of one sex, but did not affect the other. Melamed's gender-specific model helps researchers gain a better understanding of the gender differences in career success, as denying real differences would only confound the problems that already exist in today's working environment. Incorporating the effect of gender is necessary, therefore, to fully represent the determinants of career success. Following will be an examination of Melamed's gender-specific model of career success.

3.1 Melamed's Gender-Specific Model of Career Success

Melamed's hypothesized model examines three categories of predictors of career success: human capital attributes of the employee, career choices made by the employee and

structural features of the organization. The impact of these predictors on career success differed between men and women (Melamed, 1995b). Figure I outlines the particular patterns of relationships between career success and the sets of predictors.

Figure I: Melamed's Gender-specific Model of Career Success (1995b)

Note: < indicates that the set of predictors will have more influence on women's career success than men's career success.
 > indicates that the set of predictors will have more influence on men's career success than women's career success.
 ≠ indicates that the set of predictors will have a positive effect on men's career success and a negative effect on women's career success.
 = indicates that the set of predictors will have the same influence on women's and men's career success.

3.2 Changes to Melamed's Model

This section discusses the differences between Melamed's gender-specific model of career success and the modified model tested in this research. Analysis of Melamed's (1995b) expected versus actual results suggests that some variables were more valuable to the gender-specific model. Changes were made to all three constructs, where some variables were omitted due to low significance in predicting career success or a lack of difference between men and women (Melamed's results are reproduced in Appendix 1 and Appendix 2). The following discusses the variables that were removed: responsibility, mental ability, personality profile, cohort competition, market climate, unemployment, occupational prestige, occupational growth, industry type, and occupational prestige.

3.2.1 Variables Removed

Responsibility, one measure of career success, was included in Melamed's hypothesized gender-specific model of career success; however, it was not tested. Given this variable is not a common measure of career success and that it was not operationalized, it was not included in the proposed model in this research.

The modified model does not include two human capital attributes that were tested in Melamed's model: mental ability and personality profile. Mental ability was not incorporated into the proposed gender-specific model, as Melamed's (1995b) study revealed that mental ability was not a significant variable in determining either men's or

women's career success. Although Melamed's (1995b) study revealed a significant relationship between men's career success and independence and extroversion, measures of the respondent's personality profile were not included in the proposed model. This measure was not incorporated, as the scales were not appropriate the group being sampled. In addition, most of these scales are quite long, which would add to respondent fatigue. Overall, the apprehensiveness of the respondents answering questions on their personality and the time required to respond to the scales would result in a low response rate.

The modified gender-specific model does not include one career choice variable, occupational prestige. Occupational prestige, reflecting the level of knowledge, proficiency and skill in the job, was not included in the proposed model because it was not a strong predictor of men's career success and women's career success. Melamed's findings reveal that this variable was not significant when salary was the criterion being measured. No significant gender differences occurred when managerial level was used as an indication of career success.

Six variables were omitted from the organizational opportunity structure construct: cohort competition, market climate, unemployment, occupational prosperity, occupational growth and industry type. The following is a discussion of these variables and support for their exclusion is provided.

Cohort competition refers to the movement of employees across positions and through the hierarchy once they had become employed by the firm. Melamed's (1995b) findings suggest that this variable is not significant in predicting women's earnings or men's managerial level. Cohort competition was found to have a small association with men's earnings. Given these insignificant findings this variable was omitted from the proposed gender-specific model of career success. The two macro-societal factors (market climate and unemployment) and occupational prosperity and growth were not examined, as they were not significant in predicting salary level. Although, Melamed (1995b) found a significant association between these variables and both men's and women's managerial level, these measures were not incorporated, as the focus of this research was to examine the structural features of the high-tech industry, rather than the societal and market factors.

Industry Type was omitted from the model, as examining only those organizations that were only service or manufacturing oriented was too limiting. This research examined those respondents working within a high-tech organization. In addition, the number of questionnaires used from the convenience sample would have been reduced thus making analysis difficult.

3.2.2 Variables Added

In order to enhance existing research and to gain a better understanding of the differences in men's and women's careers, additional variables were incorporated into the Melamed's gender-specific model of career success. The modified model contains one

additional measure of career success, rate of salary change. In addition, three new independent variables were incorporated: training and development, mentoring and senior women. The following is a discussion of four new variables.

This research examined one additional measure of career success, rate of salary change. Jacobs (1992) suggests that the dramatic increase in women's representation among managers is simply a case of women being given managerial titles but not commensurate pay. The rate of salary change is an important variable to incorporate into the model, as data on trends in earnings can help us to ascertain the underlying trends for women and men in the broad ranks of management (Jacobs, 1992).

Human capital attributes included one additional variable: training and development. The career choices construct takes a more extensive look at those decisions that can be changed without major consequences or major tangible change to the work environment. One component was added to the career choice construct: mentoring. The opportunity structure construct encompasses more organizational features and less economic market and societal factors. Senior women, a variable that measures the degree to which the current working environment is predominately male, was added to the organizational structure construct. Support for the addition of these three independent variables and the development of the hypotheses will be provided the following section titled "new variables".

3.3 Modified Gender-Specific Model of Career Success

The core of the model in this research is borrowed directly from Melamed's gender-specific model of career success (1995b). The modified gender-specific model (Figure II) embodies a wide range of determinants of career success that together, have not been previously tested. The model is comprised of 14 variables divided into three sets of predictors as in Melamed (1995b): human capital attributes, career choices and opportunity structure. The dependent variables are: salary level, managerial level, promotion rate, and rate of salary change. The independent variables are: education, job experience, marital status, parenthood, inter-organizational mobility, intra-organizational mobility, career interruptions, relocation, training and development, mentoring, organizational size, senior women, hiring practice and functional area. Gender is a moderating variable, an additional independent variable that was included because it was believed to have a significant contributory effect on the relationship between the career success and the independent variables (Cooper and Emory, 1995). The following section takes a closer look at the moderating variable, the dependent variables and the independent variables found in the modified gender-specific model of career success. The hypotheses that were developed from Melamed's results will also be presented.

Figure II: Modified Gender-Specific Model of Career Success

Note: < indicates that the set of predictors will have more influence on women's career success than men's career success.
 > indicates that the set of predictors will have more influence on men's career success than women's career success.
 ≠ indicates that the set of predictors will have a positive effect on men's career success and a negative effect on women's career success.
 = indicates that the set of predictors will have the same influence on women's and men's career success.

3.3.1 Moderating Variable

This study takes the approach that any attempt to explain career success should consider the effect of gender. The profile of factors that explain career success changes when the sex of the individual is accounted for (Melamed, 1995b). Melamed's (1995b) study revealed that significant gender differences were found for six of the 23 predictors of salary (extroversion, independence, marital status, parenthood, organizational size and industry type) and three of the 23 predictors of managerial level (job changes, regional and industrial economic states). These differences were not overwhelming; however, they cannot be dismissed. Thus, examining the best predictors of career success while incorporating the effect of gender, can provide some insight into gender differences in the route to career success.

3.3.2 Dependent Variables

The modified gender-specific model measured career success as managerial level, promotion rate, salary level and rate of salary change. These variables are the most commonly used objective measures of career success. This following section examines those variables found in the modified gender-specific model of career success that were also present in Melamed's (1995b) model.

3.3.3 Independent Variables

Human capital attributes refer to assets that the individual has and that facilitate the achievement of success (Melamed, 1995b). Human capital attributes consist of two

constructs: job-relevant skills and home environment. Job-relevant attributes were measured by three variables: education, job experience and training and development. Marital status and parenthood measured home environment.

Attaining higher levels of education facilitates career success by providing access to positions with more challenge. Empirical studies have found gender differences in the effect education has on career success. Stewart and Gundykunst (1982) found that education worked more to the advantage of men than women. Tharenou, Latimer and Conroy (1994) found that education level was more related, albeit weakly, to men's managerial advancement than to women's. Melamed's (1995b) found that education had a stronger positive association with women's earnings than men's earnings.

Job experience is the amount of experience a person has attained in their current job title. Job experience is a good predictor of career success, as different job assignments expose managers to different bases of organizational power, such as: visibility to others, access to personal networks, and availability to resources inside and outside an organization (Melamed, 1996). However, staying in a position for a long period of time has been found to be detrimental to a person's career success. Cox and Harquail (1991) found that average job tenure had a significant negative association with total number of promotions, management promotions and managerial level. Melamed (1995b) examined gender differences in the effect of job experience on career success and found that it was more positively related to women's managerial level than to men's.

Marriage tends to affect men's and women's careers differently. Marital status interferes with women's progress, as employers are more reluctant to offer jobs to, or promote married women due to the high likelihood of career interruption. Married women are seen as less committed to their careers (Rosenbaum, 1984); whereas, married men are seen as stable and mature, characteristics that are sought after by employers. Melamed (1995b) found that marriage was related negatively to women's salary, while marital status had no effect on men's earnings. When managerial level was examined, Melamed (1995b) found that marital status was positively associated with men's managerial level, while it had no effect on women's.

Aspects of having a family affect women's and men's career success differently. Home responsibilities tend to interfere more with women's regular work responsibilities due to child care, pregnancy and maternity leave (Melamed, 1995b). Landau and Arthur (1992) found that the presence of children was positively related to salary for men, but not related to earnings for women. Melamed (1995b) found that for men's earnings and managerial level, children had no effect at all; whereas, for women, parenthood was related negatively to their career success.

Career choices are those decisions made by employees that affect their career path, progress and success. They involve major decisions with immediate and direct implications on the job definition of the employee (Melamed, 1996). Career choices were measured using two constructs: intermediate and micro-level career moves. Intermediate career options are those decisions taken while a person is already at a job,

and they have an impact on the immediate work environment in which they operate (Melamed, 1995b). The intermediate construct was measured using four variables: inter-organizational mobility, intra-organizational mobility, career interruptions, and relocation. Micro-level career moves are those career decisions that are made while on the job and which could be changed without immediate major consequences. The impact of these decisions on career success is somewhat delayed, and they tend to affect more the daily working life of the employee. They do not involve major tangible change, but rather more limited changes within the same work environment (Melamed, 1995b). Establishing a mentor-protégé relationship within the work place is one career choice that can be classified as micro-level. Micro career moves were measured by one variable; mentoring.

Inter-organizational mobility involves changing employers; thus, moving across firms. Empirical findings suggest that changing employers is negatively related to career success. Individuals who change employers pay a price in the form of reduced chances of reaching top management, as top managers are promoted from within the organization (Forbes and Piercy, 1991). Ellis and Henemen (1990) found that inter-organizational mobility was negatively related to hierarchical level. Melamed (1995b) examined gender differences in the relationship between inter-organizational mobility and career success and found no significant correlations.

Intra-organizational mobility involves job changes within the same organization. Studies have shown that changes in positions can positively influence career success, as it

increases an employee's visibility, helps employees build networks, permits transfer to a more powerful function, and allows employees to gain a wider spectrum of experience (Melamed, 1996). Melamed (1995b) found that job changes were significantly negatively associated with men's relative wages, whereas they had no effect on women's earnings. When career success was measured as managerial level, job changes were more positively associated with women's than with men's managerial level. The inconsistent relationship between intra-organizational mobility and men's and women's career success coupled with the limited studies on gender differences in job changes has made it difficult to develop a strong hypothesis.

Relocation is a career choice that involves making a geographic move to enhance your career opportunities. Gattiker and Larwood (1990) found that top management position correlated positively with geographical moves. There are no studies reporting gender differences in the relationship between relocation and career success.

Career interruptions were included in Melamed's hypothesized gender-specific model of career success; however, they were not tested. Gaps in employment usually have negative outcomes on career success, through their impact on total work experience. Furthermore, career interruptions may signal to an employer that the individual is less committed, as his/her responsibilities are divided between home and work. Schneer and Reitman (1997) found that early gaps had a negative impact on income and management level. Gaps in mid-career resulted in an income penalty. A negative effect on management level was found for women, but not for men.

The opportunity structure built into career success can be classified into two levels of influence, organizational features and job type. Organizational features is where internal mobility is influenced by job vacancy rates, gender distribution, organizational career ladders, and the size of the organization (Melamed, 1995b). Opportunity structure consists of two constructs; intermediate organizational factors and micro-job factors. Intermediate organizational factors were measured using three variables: organizational size, senior, and hiring practice. Micro-job factors were measured using one variable; functional area.

The opportunity for career success is influenced not only by human capital attributes and choices made in one's career, but also by the structure of the organization. It is apparent that an educated individual with job experience and commitment to their career would have difficulty advancing up the hierarchy if the organizational structure did not provide the opportunity through job vacancies or expansion. The structural approach, which examines the impact of organizational predictors on career success suggests that job vacancy rates, organizational career ladders, and organization size and structure influence internal promotion (Melamed, 1996).

Organizational size has been found to have an effect on career success. Large organizations have more elaborate internal labour markets, with greater promotion opportunities than small organizations (Whitely, Dougherty, Dreher, 1991). Employees in large organizations are likely to gain more promotions, but it takes them more time to reach the level of responsibility that their colleagues in small organizations enjoy (Cox

and Harquail, 1991). Judge et al (1995) found that executives who worked in large companies earned higher salaries than executives who worked in small or unsuccessful or private firms. Melamed (1995b) examined the gender effect of size of the organization on career success and found a significantly negative correlation with men's earnings, but no association with women's relative wages. Melamed (1995b) found a positive correlation between women's managerial level and organization size; whereas, no effect was found for men. This relationship is not entirely consistent with previous studies, although the relative sizes and direction of effects is similar.

Hiring practices refers to ways in which an organization recruits its employees; primarily from within the organization or from an outside supply. The forces of supply and demand interact to determine career success. A closed internal labour market reflects an organization that totally relies on its own internal employees, creating a closed supply flow except at the entry level (Sonnenfeld, 1989). An open supply flow reflects an organization that recruits employees at their mid-career, rather than promoting employees from the lower ranks (Sonnenfeld, 1989). Melamed (1995b) found that labour market openness facilitated men's earnings, but had no effect on women's. No significant association was found between labour market openness and managerial level for either men or women. It was expected that individuals trained by and working within an organization will be more successful than those recruited from the external market, as they possess the skills and job experience related to that organization.

The functional area in which a person operates can influence the level of salary and management attained. Cox and Harquail (1991) found that line job experience, working in a functional area that has an impact on strategic decisions, had a marginally significant positive effect on management level. One explanation is those holding line positions are more essential to the organization's survival and thus, closer to influential decision-making processes which are found in managerial positions. Functional area affects women's and men's career differently. Larwood and Gattiker (1987) found that line positions were correlated to hierarchical success and were found to be statistically significant for men but not for women. Melamed (1995b) found that a line position was positively associated with both men's and women's managerial level. It was expected that people in line positions would typically command more income and promotions than those people in staff positions.

Hypotheses

Melamed's gender-specific model of career success and results (1995b) were used as the basis of the following hypotheses which will be tested.

- H₁: Education will be more strongly positively associated with women's career success than men's career success.
- H₂: Job experience will be more strongly positively associated with women's career success than men's career success.
- H_{3a}: Marriage will be negatively associated with women's career success.
- H_{3b}: Marriage will be positively associated with men's career success.
- H_{4a}: Parenthood will be negatively associated with women's career success.
- H_{4b}: Parenthood will be positively associated with men's career success.

- H₅: Inter-organizational mobility will be negatively associated with women's career success and men's career success.
- H₆: Intra-organizational mobility will be negatively associated with women's career success and men's career success.
- H₇: Relocation will be positively associated with women's career success and men's career success.
- H₈: Career interruptions will be more strongly negatively related to women's career success than men's career success.
- H₉: Organizational size will be more strongly positively related to women's career success than men's career success.
- H_{10a}: Hiring practices will be positively associated with men's career success.
- H_{10b}: There will be no relationship between hiring practice and women's career success.
- H₁₁: Functional area will be positively associated with women's career success and men's career success.

New Variables

This section discusses the three independent variables that were added to enhance Melamed's model. The modified gender-specific model of career success is enhanced as it examines the relationship between those variables that together have not been tested. Past research has not looked at the relationship between career success and training and development, mentoring and senior women. The following discusses the relevant research that supports the addition of these three independent variables and the development of the hypotheses.

Training and development courses can develop knowledge, skills, credentials, and credibility, which in turn can help employees achieve a promotion (Ragins and Sundstrom, 1989). For women, training and development gives them an essential source of expertise in management skills, which they may have little opportunity to gain through job assignments and work experience (Tharenou, Latimer, and Conroy, 1994). Tharenou, Latimer and Conroy (1994) found that training and development led to managerial advancement; but was of more advantage to men than to women. It was hypothesized that training and development would be more positively related to men's career success than women's career success. The following hypothesis was developed.

H₁₂: Training and development will be more strongly positively associated to men's career success than women's career success.

A mentor is usually a senior, experienced employee who serves as a role model, and provides support, direction and feedback to the younger employee regarding career plans and personal development (Noe, 1988). A mentor provides protégés with access to very important social networks, increasing their access to decision-makers in the organization who may influence career outcomes. Fitt and Newton (1981) observed that the 24 women who had reported having had mentors were on average better paid than the six women who had never had such an affiliation. Dreher and Ash (1990) found individuals experiencing extensive mentoring relationships reported receiving more promotions, had higher incomes, and were more satisfied with their pay and benefits than individuals experiencing less extensive mentoring relationships. Morrison, White and Van Velsor (1987) examined gender differences and found that 100% of the successful women in

their study reported having had a mentor while only 55% of the successful men had had a mentor. It was expected that mentoring would positively affect career success; however, it would have more influence on women's career success than men's. The following hypothesis was developed.

H₁₃: Mentoring will be more strongly positively associated to women's career success than men's career success.

The number of women working at upper levels of the hierarchy was not examined in Melamed's gender-specific model of career success. A male hierarchy is a working environment composed exclusively or predominantly of men (Tharenou, Latimer, & Conroy, 1994). Tharenou and Conroy (1994) found a significant negative association between women's managerial level and male hierarchy, whereas, it had no effect on men. The hypothesized mechanism is that this aspect of organizational structure, organizational demography, reduces women's career encouragement and women's opportunities for training and development (Tharenou, Latimer, & Conroy, 1994). It was expected that a working environment that is predominately male would have a negative effect on women's career success and a positive effect for men. The following hypothesis was used to test for the effect senior women would have on men's and women's career success.

H_{14a}: Senior women will be negatively associated with men's career success.

H_{14b}: Senior women will be positively associated with women's career success.

3.4 Summary

The modified model is comprised of 18 variables. The modified gender-specific model of career success, including four new variables, was tested on men and women working in one industry, high technology. Some variables were omitted from Melamed's hypothesized model: responsibility, mental ability, personality profile, cohort competition, market climate, unemployment, occupational prestige, occupational growth, industry type, and occupational prestige. These variables were removed from Melamed's model for two reasons; either the measure was insignificant or it was not related to the objective of the research. In addition, if the variable were included they may have increased the time required to respond; thus, resulting in a low response rate.

CHAPTER 4: RESEARCH METHODOLOGY

The primary objective of this research was to enhance existing research by focusing on Melamed's gender-specific model of career success. The proposed research followed an ex post facto design. Following is a discussion of the sample and questionnaire used to collect the data and the proposed measures of the variables outlined in the gender-specific model of career success.

4.1 Data Collection

ZoneFive, a Professional Development forum affiliated with the Ottawa Carleton Research Institute (OCRI), was selected for the sample. The sampling population is comprised of individuals in the technology marketing community who attend ZoneFive meetings and was selected using nonprobability sampling. ZoneFive participants consist mainly of technology marketing practitioners holding middle to senior management positions. Attendance covers a full cross section of small and large size companies, marketing technology hardware products, software, and services. A convenience sample was selected.

ZoneFive holds monthly meetings, which are conducted on the first Thursday of every month (excluding July and August). These meetings are used to communicate new and informative ways of marketing high technology products and services to practitioners and academics. The data was collected by distributing envelopes on each of the seats in the theatre, which has the capacity to hold 300 people. The envelope contained the questionnaire, a return envelope and a postcard. An announcement by the Chair at the

beginning of the meeting, emphasizing the importance of the survey, was used to encourage individuals to respond.

A cover letter was written to introduce the topic of the questionnaire and the importance of the research to individuals, academics and organizations. To encourage a high response rate follow-up calls were conducted and an incentive for participants was conducted -- a draw to win a free ZoneFive membership. Respondents were given a postcard to enter a draw to win a free 1998/1999 ZoneFive season's pass. To be eligible for the draw respondents had to complete and return the postcard within two weeks of receiving the questionnaire. The respondents were asked to mail their completed questionnaire and postcard separately to the researcher, in order to ensure that the information could not be identified. Follow-up calls were conducted by the researcher approximately three weeks after distribution to encourage completion and remittance of the questionnaires. The questionnaire was distributed three times: May, June, and September of 1998.

4.2 The Questionnaire

Primary data was collected using the questionnaire that appears in Appendix 3. The questionnaire was designed to obtain information on the careers of professionals working in high technology. The Chair of ZoneFive aided in the development of the questionnaire. The questionnaire was pre-tested on the Chair and the Director of Professional Programs for OCRI. This collaboration was necessary to obtain information

to help both the organization supporting the study in its own programming and the researcher.

The questionnaire consisted of six sections: 1) background information and training experience, 2) career as a whole, 3) career history, 4) current working environment, 5) information on mentoring and 6) personal information. The first section relates to the respondent's educational attainment and experiences with training and development courses. It also addresses respondent's interest in further training. The second section relates to the individual's career as a whole. It addresses the length of time spent working with the current employer, mobility across jobs, organizations, and industries. Section three takes a close look at five positions the respondent has held throughout their career: current position, position prior to the current position, position prior to the two most recent, first position in high-tech and the first position of full-time employment. These questions will provide valuable information regarding choices and transitions made by the respondents within their career. Section four examines the opportunity and organizational structure of the respondent's current working environment; thereby, determining the presence of barriers to career advancement. Section five evaluates the importance of mentoring in achieving career success. The last section examines the demographics of the sample.

The questionnaire was pre-tested on the Chair of ZoneFive, the Director of Programs and four individuals working in the marketing department for a high-tech organization. The pre-test results indicated that the instructions and format of some of the sections were

confusing and difficult to interpret. To rectify the confusion, some of the sections were changed from a table format to standard text. The following section outlines the operationalization of each measure.

4.3 Measures

The gender-specific model consists of four dependent variables, fourteen independent variables and one moderating variable. The four dependent variables are salary level, managerial level, promotion rate, and rate of salary change. The independent variables are: education, job experience, marital status, parenthood, inter-organizational mobility, intra-organizational mobility, career interruptions, relocation, training and development, mentoring, organizational size, organizational hiring practices, male hierarchy, and functional area. The one moderator variable is gender, which was hypothesized to moderate the effect of the three sets of predictors on career success.

Operationalization of measures is often imperfect; however, adopting scales that have been previously tested can enhance the validity of results. Following are the measures used to operationalize the variables in the gender-specific model of career success.

4.3.1 Career Success

Salary and managerial level are the most common measures of career success. Two additional measures, promotion rate and rate of salary change, were used to compare early versus late career since older people will typically earn more, but may not be moving up the corporate ladder any more quickly. Following is the operationalization of

the four dependent variables: salary level, rate of salary change, managerial level and promotion rate.

Salary level

Respondents were asked to indicate their approximate annual gross current salary, including bonuses and commissions. In order to reduce respondent's reluctance to reveal such personal information, they were asked to round their salary to the nearest ten thousand dollars.

The usefulness of raw salary as an indicator of career success is debated. In Melamed's (1995b) study, it was argued that salary as an indicator of career success was not useful due to the heterogeneity of the sample studied regarding job type and industry. Melamed (1995b) corrected the raw salary scores for the effect of age, average salary of British employees of the same occupation, and wage range in the occupation excluding the top and bottom 10% earners. The three variables were regressed on salary, and the original score was divided by the predicted salary score. In this research salary level was highly correlated with age; thus, residualized salary was used as opposed to salary level.

Rate of Salary Change

Salary rate was measured using the annual gross starting salary and the annual current gross salary. Rate of salary change was operationalized as the percentage increase between salary plus bonus and commissions earned at the start of their career and that earned in 1998.

Managerial Level

Managerial level was assessed on a self-reported 4-point scale ranging from non-management to senior management or chief executive. The managerial level values were converted into a scale where the higher number represents a higher level of management. The managerial level was assessed for five positions (current position, position prior to current, position prior to one just described, first position in high-tech, and first position of full-time employment) within the respondent's career; however, only the current position was analyzed.

Promotion rate

Respondents were asked to indicate the number of times they had changed jobs, including changing positions with the same employer, in the last five years. They were also asked to indicate how many of those changes were promotions. This measure was modified to include a specific time frame of five years, as pre-test results indicated that respondents were having difficulty remembering all the promotions received in their career. The promotion rate was calculated as the number of promotions over the five-year period.

4.3.2 Human Capital Attributes

Measures used to assess human capital attributes included: education, job experience, marital status and parenthood. Following is the operationalization of the four human capital measures.

Education level was measured on a 6-point scale reflecting the level of education attained. The following values were used: high school or CEGEP certificate; some college or university; community college or technical college; bachelor's degree; masters degree or professional designation; and doctoral degree. These values were converted into a scale where the higher number represents a higher level of education attained. Data was also collected on the field of specialization for post-secondary education for descriptive purposes.

Job experience was operationalized as the number of years respondents had been working in their current position. Respondents were asked to indicate the year they started their current position.

The training and development measure assessed the level of off-the-job training received by respondents. Tharenou, Latimer, and Conroy (1994) used 3 items to assess training and development: the number of times an individual had attended internal training courses, external training courses, and industry meetings or external conferences. The training and development measure used in this study was adapted from Tharenou, Latimer, and Conroy (1994). The measure was modified to include specific funding information regarding internal and external training courses, as pre-test results indicated that respondents were confusing training courses with Zone5ive marketing forums. Respondents were asked to indicate the number of times they had participated in training courses in each of the following three categories: (1) organized and funded by your employer; (2) organized by an outside organization, but your employer funded you; (3)

organized by an outside organization, but your employer did not fund you. For those who participated in training courses, respondents were asked to further indicate how many of those courses involved some type of certification. Respondents were only asked to specify the number of courses taken within five years, as pre-test results indicated that they were having difficulty remembering the number of courses taken over their entire career. The measure was modified to specify only courses of at least 2 days duration, as respondents in the pre-test were including ZoneFive meetings which are not training and development courses.

Two measures were used to assess the home environment: marital status and parenthood. Marital status was determined by one question with three responses: (1) single, never married; (2) currently married; (3) divorced, separated, or widowed. Parenthood was operationalized as the number of children the respondent had. Those respondents who had children were asked to indicate how many children were currently living with them. It was important to decipher the number of children living at home, as care-giving responsibilities inhibits your career.

4.3.3 Career Choices

Two levels of career choices were examined: intermediate career moves and micro-level career moves. Four measures were used to examine intermediate career moves: inter-organizational mobility, intra-organizational mobility, career interruptions and relocation. Following is a discussion of how each measure was operationalized.

Inter-organizational mobility was defined as a change in employer. Respondents were asked to indicate the number of different employers they had worked for in their career, since they finished school or finished their first post-secondary program.

Intra-organizational mobility was defined as a change in position. Melamed (1995b) asked respondents to indicate the number of job titles they had held throughout their career. Given that people can change titles without changing job content, asking for the number of job titles may have been misleading. Respondents were asked to indicate the number of times they had changed jobs. Pre-test results suggested that respondents were having a difficult time differentiating between positions and jobs, thus, “including a change in positions with the same employer” was added for clarification.

Career interruption was assessed using a single questionnaire item. Respondents were asked to indicate the number of leaves of absences from work they had taken during their career. Of those respondents who had taken a leave of absence, they were asked to indicate the total number of months. Thus, it was possible to compare the impact of taking a leave with the impact of its duration.

Relocation was defined as geographic mobility. Respondents were asked to indicate the number of job changes during their entire career that involved a change in work location of at least 50 kilometers. The number of kilometers was specified, as moves that did not substantially affect the individual were not considered a geographic relocation.

One measure was used to examine micro-level career moves: mentoring. This study examined the prevalence of mentoring, the gender of the mentor, the amount of time spent with the mentor and the extensiveness of the mentoring relationship. Respondents were asked to indicate the number of mentors they had had throughout their career, whether their recent mentor was in the high-tech industry and the hours spent per month with their most recent mentor. Respondents were also asked to indicate whether the mentors throughout their career were: 1) predominantly female; 2) predominantly male; and 3) a mixture of both female and male. It is important to decipher the gender of the mentor, as having a male mentor has been found to be more advantageous than a female one for both women and men.

Dreher and Ash (1990) developed a mentoring scale intended to provide a global measure that is representative of the career and psychosocial functions described by Kram (1985). Dreher and Ash's (1990) mentoring scale was used for this study; however the definition of a mentor and the instructions were modified slightly because pre-test results indicated it was problematic. A mentor was defined in this study as a senior employee who has provided support and guidance to you in managing your career. Respondents were asked to think of their most current mentor, whereas, Dreher and Ash (1990) looked at mentoring over their entire career.

The 18-item scale to measure mentoring experiences included some of the following items: "Given or recommended you for challenging assignments that present opportunities to learn new skills", "Given or recommended you for assignments that

required personal contact with managers in different parts of the company”, “Kept you informed about what is going on at higher levels in the company or how external conditions are influencing the company” and “Encouraged you to prepare for advancement”. The complete 18-item mentoring scale appears in Appendix 3, question 6 on page 7 of the questionnaire.

The 18 items were measured using a 5-point Likert scale where 1 indicates “not at all” and 5 indicates “to a very large extent”. A total mentoring score was constructed by calculating the mean of the 18 items for each respondent. A high total score for these items would indicate an extensive mentoring experience.

4.3.4 Opportunity Structure

Four measures of the structure of organizations were used: organizational size, hiring practice, male hierarchy, and functional area. The size of the organization was measured by one item with the following response alternatives concerning the number of employees: (1) less than 10; (2) 10-25; (3) 26-50; (4) 51-100; (5) 101-500; and (6) over 500. Hiring practices was operationalized by creating a question with two response categories. Respondents were asked to indicate how their organization hires for a new position or to replace personnel in a position: (1) people from outside the organization primarily or (2) people from within the organization primarily. Male hierarchy was assessed using two questions. Respondents were asked to indicate the percentage of senior managers who were women and whether the colleagues in their immediate work environment were mostly female, mostly male or a mixture of male and female.

4.3.5 Other Measures

At the request of the organization sponsoring this research some other measures were included in the study (Appendix 3). The organization wanted to determine the number of courses their audience members had taken in marketing, high-tech business or high-tech marketing during either their formal education or subsequent training. Respondents were also asked to indicate the areas of training and development in high-tech marketing they would like to receive. If the respondents indicated “other” they were asked to specify the area of training and development. An open-ended question was used to assess the type of training and development the respondents would like to receive in the next five years. This information enabled the organization to better meet the needs of their clients by providing keynote speakers with valuable information to share.

Although the target population was those working in the high-tech industry, respondents were asked to indicate which industry they were currently working in. Industry was categorized under 12 types: (1) high technology; (2) telecommunications; (3) hardware; (4) software; (5) high-tech services; (6) manufacturing; (7) services; (8) government; (9) trade; (10) finance, insurance, and real estate; (11) training and education; (12) construction; (13) resources; (14) utilities; (15) transportation; (16) other. In addition, respondents were asked to indicate the industry which the bulk of their work experience is in, and the industry they worked in prior to working in high-tech. Statistics Canada has not formally classified the high-tech industry, thus, the definition was developed with the aid of professionals working in the high-tech industry.

4.4 Data Analysis Techniques

The proposed gender-specific model and research hypotheses were tested using several statistical techniques. The objective of the research was to determine what predicts career success in high-tech and the degree to which gender affects this prediction. The gender-effect was tested using moderated hierarchical regression. If significant gender differences existed, a stepwise regression analysis was run in order to determine the best ways for women and men to get ahead.

The following is a table that consists of four research questions. These research questions summarize the analytic strategy used for testing the modified model. Question 1 was a precursor, a means of understanding the sample before testing the model. Questions 2, 3 and 4 reflect a replication of Melamed's testing of the gender-specific model of career success. An explanation of each statistical test will be presented in detail in the following sections.

Table 4.1: Analytic Strategy for testing the Model

Research Question	Statistical Test
1. Do men and women bring different career experiences to the organization?	t-test
2. Do human capital attributes, career choices and organizational opportunity structure influence men's and women's career success differently?	Bivariate Correlation Fisher z-score
3. Do men and women receive the same marginal payoffs for their career experiences?	Moderated Hierarchical Regression
4. What best predicts career success for women and men?	Stepwise Multiple Regression

4.4.1 The t test

The t test was used to determine if there was a difference in education, job experience, salary, hierarchical level, number of promotions, training and development, and career moves for men and women. The t test helped in the interpretation of results. For instance, the different mean scores between men and women may explain why one predictor looks to be more advantageous to one sex than the other. The t test is an assessment of differences between the means of two independent samples, in this case men and women. The mean scores for each independent variable were computed independently for women and men. Firstly, an F test was calculated to determine for each variable whether the variance between the two groups was equivalent. If there were no significant differences in the variances of the two groups, the groups' variances were pooled for each variable in calculating the t test. If the two groups had significantly different variances for each variable, a separate variance estimate was used. A significant t test indicated that the variable does differ between men and women.

4.4.2 Correlation Analysis

Throughout the literature there has been much debate surrounding the issue of testing and interpreting a moderator variable. Arnold (1982) examined the appropriate statistical techniques, which should be employed to test the validity of hypotheses regarding the existence of moderator variables, and moderated relationships. Arnold draws a distinction between the *degree* of relationship between two variables X and Y and the *form* of the relationship between the same variables. The degree of relationship measures the strength of the relationship between two variables and is indicated by the correlation

coefficient r_{xy} between two variables. The form of relationship measures the determination of another variable and is described in the coefficients of the regression equation (Arnold, 1982). A comparison of correlations answers the question “does X account for as much of the variance in Y in women as in men?” Comparison of regression coefficients answers the question “does a change in X make the same amount of score difference in Y in women as it does in men?” (Arnold, 1982).

The relationship between two variables (Y and X) may or may not remain the same with regard to both degree and form over variation in some third “moderator” variable (Z). In order to determine whether the degree of relationship between Y and X is equal for the two subgroups, the correlation coefficients r_{xy} for the two groups was compared. If the degree of relationship varies with Z then a situation of differential validity is present. A comparison of the regression coefficients B_{yx} for the two groups was used to determine whether the form of the relationship varies with Z.

Bivariate correlation assesses the degree of relationship between a dependent variable (DV) and an independent variable (IV) (Tabachnick and Fidell, 1989). Correlation is the measure of size and direction of relationship between two variables, and squared correlation is the measure of the strength of association (Tabachnick and Fidell, 1989). Pearson r was used to measure the association between the two variables. The Pearson r ranges between -1.00 and $+1.00$ in size where 0.00 represents no relationship between the DV and the IV. An r value of -1.00 or $+1.00$ indicates perfect predictability of one

score when the other is known (Tabachnick and Fidell, 1989). A significant correlation indicated an association between the two variables.

4.4.2.1 Testing for Differences in Correlation Coefficients

A z-score, which represents the standard deviation on a normal distribution, was calculated to compare the correlations between men and women. The formula is as follows.

$$Z = (r_1 - r_2) / (1/n_1 - 1 + 1/n_2 - 1)^{1/2}$$

where

r_1 = correlation for Group 1 (i.e., women)

r_2 = correlation for Group 2 (i.e., men)

n_1 = sample size of Group 1

n_2 = sample size of Group 2

In order to calculate the z-score correctly, the absolute value of the difference in the correlation coefficients must be taken and then interpreted. If the z value was equal to or greater than 1.96 it was significant at the .05 level of significance. If a comparison of 2 coefficients was found to have a significant degree of relationship it was interpreted as accounting for more of the variance in the group with the higher correlation. Differences in the degree of relationship were examined for each independent variable. If a significant difference existed in the r values between men and women, the independent variable was analyzed using stepwise multiple regression as outlined below.

This analysis of the degree of relationship is different than that performed by Melamed (1995b). Melamed (1995b) did not explicitly address the issue of degree of relationship, as it was only examined when a difference in form of relationship (significant interaction

term) was found. It is important to examine both the degree and form of relationship for all of the independent variables, as valuable results may be lost.

4.4.3 Moderated Hierarchical Regression

In the proposed gender-specific model, gender is a moderating variable and was expected to have an effect on the relationship between the three sets of independent variables and career success. In order to determine whether the form of the relationship was conditional upon a moderator variable Z , it was necessary to determine whether changes in Z were in fact associated with changes in B_{yx} using the hierarchical regression technique. According to this procedure, the multiple correlation coefficients produced by equations combining a predictor variable and a moderating variable in an additive manner are compared with coefficients produced by prediction equations containing the same terms and multiplicative interaction term between the two (Melamed, 1995b). An interaction is said to occur if the partial coefficient associated with the product term is significant (Arnold, 1982).

A series of moderated hierarchical regression analyses were carried out on each of the dependent variables in order to assess whether there were different forms of relationships for women and men. Predictors were entered into the equation in the following order: gender, one of the specific predictors, and the interaction between the specific predictor and gender. If the interaction term was significant, this indicated that the form of relationship is conditional upon a moderator variable. Thus, we could determine that the

marginal payoffs of that independent variable in terms of success were different for men and women.

4.4.4 Stepwise Multiple Regression

Regression analysis facilitates the assessment of the relationship between a dependent variable with one or more independent variables (Tabachnick and Fidell, 1989). A stepwise regression was used to build an equation that represented the best set of predictors of each of the dependent variables (salary level, managerial level, promotion rate and salary rate). A stepwise multiple regression was carried out independently for women and men for each dependent variable as the criterion if earlier analysis suggested that there were gender differences in the factors related to success (either in form of relationship or degree of relationship). If gender differences in the relationship of the independent variables to career success existed, stepwise multiple regression provided some insight into which predictors were more important for women's and men's career success. If no gender differences in degree of relationship and form of relationship were found, stepwise multiple regression was carried out for the full sample.

The independent variables found to have a significant difference in degree and form of relationship were entered into the regression equation using stepwise model selection. At each step the variable that adds most to the prediction equation, in terms of increasing R^2 was entered (Tabachnick and Fidell, 1989). The process continued until no more useful information could be obtained from further addition of variables.

4.5 Summary

This section presented the methodology and the analytic strategy used to test the hypotheses. The procedure used to collect the data was outlined. This section also presented the operationalization of the measures and the type of data analysis that was performed. The following section presents the results of the data analysis.

CHAPTER 5: RESULTS

This chapter describes the results of the career survey and the methods used to answer the four research questions. The following sections describe the data preparation and provide a description of the sample. Gender differences in career experiences, degree of relationship and form of relationship between the predictors and career success will be presented. Lastly, the best predictors of men's career success and women's career success will be presented.

5.1 Data Preparation

The first step in the data analysis consisted of identifying outliers and influential data points, and examining the correlations for multicollinearity. The measures in the gender-specific model of career success were also assessed for interpretability. The following two sections describe the preparation of the data for statistical analysis.

5.1.1 Outliers and Influential Data Points

Once the sample was confirmed to include only those individuals working in a high-tech organization, the second step involved determining the treatment of outliers and influential data points. Outliers are cases with such extreme values on one or a combination of variables that they unduly influence the statistical tests (Tabachnick and Fidell, 1989). Outliers can occur because of two fundamental reasons: a data entry error or the subjects are simply different from the rest (Stevens, 1996). It is very important to identify outliers, as the researcher wants the results of the statistical analysis to reflect

most of the data and not to be highly influenced by one or two data points (Stevens, 1996).

In order to identify any outliers, all variables were explored using descriptive statistics, the scatterplot diagram, and the casewise plot of standardized residuals requested through SPSS Regression. Descriptive statistics were examined and the minimum and maximum values were reviewed to ensure that the data and the missing values were entered correctly. In the second analysis, all of the independent variables were entered together into one equation and were examined using scatterplots. The scatterplots of the standardized residuals with the predicted values was carried out on each dependent variable (i.e., x, y, z). Cases with data entry errors were adjusted by reviewing the original questionnaires and the data set. Cases in which the values were greater than 3 standard deviations from the mean were deemed outliers and in most cases were recoded as missing values. Three outliers were found when the scatterplot of number of children and salary level was examined. These cases were examined and the values were recoded as missing. In order to ensure that all outliers were detected, all of the independent variables were entered into one equation and the casewise plot of standardized residuals for each dependent variable were also reviewed. The casewise plots revealed no serious multivariate outliers in the data.

An influential data point is one that when deleted produces a substantial change in at least one of the regression coefficients (Stevens, 1996). It is very important to make the distinction between an outlier and an influential data point because a value that is an

outlier will not necessarily be an influential point (Stevens, 1996). Cook's distance, a measure of the change in regression coefficients that would occur if the case were omitted, was used to assess influential data points. Operationally, a value was considered an influential point if Cook's distance was greater than one. A linear regression was carried out for each dependent variable. Cook's distance was greater than 1 for each dependent variable, thus revealing an influential data point. Through examining the Cook's values separately for each dependent variable, case 46 was determined to have high influence. In order to ensure that this case was in fact influencing the results, the regressions were run with and without the case. When the case was removed, the linear regression model met all the assumptions of normality and independence and there were no longer signs of multicollinearity. Given the high influence of this case on the results, it was omitted from the analysis

5.1.2 Multicollinearity

Multicollinearity, moderate to high intercorrelations among the predictors, was examined using three methods: variance inflation factor (VIF), correlation matrix and collinearity diagnostics. Through examination of the correlation matrix, no multicollinearity was found, as no correlations were above .80. However, the correlations between age, salary and management level were moderately high ($r = .56$ and $r = .63$). Age was controlled for by residualizing salary as a function of age. Once age was controlled for, the high associations were no longer present. The VIF factor indicates whether there is a strong linear association between a predictor and all remaining predictors (Steven, 1996). The VIF factor was examined for each dependent variable and revealed no multicollinearity,

as each value was less than 10 for each predictor. The collinearity diagnostics revealed no small eigenvalues with large indices. Overall, the three methods used indicated that multicollinearity was not evident in the data.

5.1.3 Assessment of Measures

The following section presents those measures in the gender-specific model of career success that were changed or removed from the analysis. Before the statistical analysis could be performed, the variables had to be assessed in order to determine their interpretability.

5.1.3.1 Changes to Variables

For some of the variables in the model, different measures were used to operationalize the variable. Upon analysis of the correlation matrix, some variables were found to be highly correlated. The following examines the four variables that were modified: salary level, parenthood, intra-organizational mobility and mentoring.

Salary Level

Bivariate correlation revealed that age was highly correlated with salary level ($r = .56$). In order to control for this association, salary was residualized as a function of age. After salary was residualized using the studentized residuals, bivariate correlation was carried out again on all of the variables. The results revealed that age was no longer highly associated with residualized salary, as the r -value decreased substantially ($r = .16$). Residualized salary was used in the regression analysis.

Parenthood

Parenthood was operationalized using the number of children the respondent had (Q62a), as opposed to the number of children currently living with each respondent (Q62b). The results indicated that there was very little difference between the two measures and there was less missing data for the question regarding the number of children.

The correlation between parenthood and residualized salary for female respondents was counter-intuitive. The results indicated a positive correlation, where those female respondents who had children were more likely to earn higher salaries than those who did not. This result did not coincide with past findings. In order to clarify the association between number of children and salary, a scatterplot of the two variables was examined, which revealed 3 outliers (cases 9, 33, and 78). Given the correlation was non-significant when the outliers were removed, the number of children for these cases was recoded as missing.

Intra-organizational Mobility

Intra-organizational mobility examines the total number of times each respondent changed jobs in the last five years. This variable looks at the total number of moves, including the number of promotions. For the purpose of this analysis, number of lateral moves was calculated, which looks at the total number of moves excluding those moves that were considered promotions. Number of lateral moves was examined and intra-organizational mobility was removed from the analysis.

Mentoring Scale

The reliability of the mentoring scale was assessed by calculating the Cronbach's alpha. Cronbach's alpha was .89. The scale was internally consistent, as the scale was measuring mentoring on a global scope.

5.1.3.2 Variables Excluded from Analysis

This section presents the statistical techniques used to manipulate the data and the two variables that were removed from the analysis. One-way ANOVA was utilized to assess the differences between the career experiences of men and women. Functional area and education field were examined, as t-test results revealed that the differences between the means of men and women for both variables were not significant. It was expected that salary level would vary by functional area and education field; however, that was not the case. These findings warranted further exploration. One-way ANOVA, using the Scheffé post hoc multiple comparison tests and estimating the sample size by the harmonic average of all groups, was therefore used to assess homogeneity of the groups for functional area and education field.

Functional Area

The one-way ANOVA revealed that none of the groups were statistically different from each other when salary level was examined. Although the Human Resource group was different, it was only due to one respondent who was at the executive level. Thus, the average salary for this respondent was different and was an outlier. Given this salary was

in line with other executives and that the group was not of significant size ($n=1$), it was decided that the group should not be changed and should include the outlier. In order to strengthen the case for not including functional area in the regression analysis and to ensure that clustering was robust, one-way ANOVA was computed for the four remaining dependent variables. The tests revealed that no two groups were significantly different at the .05 level for each dependent variable. It was concluded that salary, management level, promotion rate and rate of salary change did not vary by functional area. It was determined that functional area was not a useful variable and it was omitted from statistical analysis.

Education Field

Analysis of the one-way ANOVA revealed that no two groups were significantly different when salary level was examined. In order to determine whether the variable should be included in the regression, one-way ANOVA was repeated for each dependent variable. It was concluded that salary level, management level, number of promotions and rate of salary change in current position and rate of change over career did not vary by education field. Education field was not included in the regression analysis, as no variance between the groups made the variable useless.

5.1.3.3 Revised Gender-Specific Model of Career Success

Through assessment of the measures in the previous section, it was apparent that the variables identified in the proposed model were not adequate in describing the predictors of career success. Figure III illustrates the revised gender-specific model of career

success that excludes functional area and includes the new variable lateral moves, which replaced intra-organizational mobility.

Figure III: Revised Gender-Specific Model of Career Success

Note: < indicates that the set of predictors will have more influence on women's career success than men's career success.
 > indicates that the set of predictors will have more influence on men's career success than women's career success.
 ≠ indicates that the set of predictors will have a positive effect on men's career success and a negative effect on women's career success.
 = indicates that the set of predictors will have the same influence on women's and men's career success.

5.2 The Data

A convenience sample of 77 employees working in a high-tech organization was obtained from the data collected from the ZoneFive technology-marketing forums. A total of 584 questionnaires were distributed; 103 questionnaires were completed and returned by mail. Although the researcher made numerous follow-up calls, the response rate was only 18%. A total of 25 questionnaires had to be eliminated, as the respondents either indicated that they were not working in a high-tech organization or not working in the high-tech industry. As described below, one other respondent was excluded from the analysis because this person had a significant influence on the results.

This section discusses the demographics of the sample. Table 5.1 provides a complete breakdown of the sample. Male respondents represent 55% of the sample, while females represent 45%. The sample was well educated: 37% have completed a bachelor's degree, while 31% have completed a master's degree. Of those who have completed a graduate degree, the majority have a Masters in Business. The average age of the respondents was 36 years. Analysis of t-tests revealed a significant gender difference in age, where men were older than the women. Most respondents indicated that they were married with one child; however, gender differences did exist. The impact of the difference in age and marital status on the interpretation of the findings will be discussed in the section on gender differences.

Table 5.1: Demographic Breakdown of Sample

<u>Variable</u>	<u>Percentage of Respondents</u> (%)
Gender	
Female	45
Male	55
Education	
High School	1
Some College or University	10
Community/ Technical College	19
Bachelor Degree	37
Master Degree	31
Doctoral Degree	1
Education Field of Highest Degree	
Business	58
Engineering/Math/Comp. Science	16
Other	26
Marital Status	
Single	30
Currently Married	58
Divorced, Separate	13
	<u>Mean Score</u>
Age	36
Number of Children	1

Descriptive statistics, found in Table 5.2, provide a greater understanding of the respondents' experiences over their career and in their current position and working environment. The breakdown of employees by industry and functional area, suggest that the sample was heavily biased towards employees working in software (37%) and marketing (67%). This result is reflective of the sample studied, that being professionals in technology marketing who participated in ZoneFive marketing forums. Although most

of the respondents indicated they were in the area of marketing, career success did not vary by functional area. For instance, respondents working in the area of engineering did not earn a higher salary or obtain a higher position in management than those working in the area of marketing. Most of the respondents indicated that they were in management, where only 22% were in a non-management position. This can be attributed to the fact that the sample was older. The average respondent had worked in his/her present job for at least 2 years. In the last 5 years, respondents have changed jobs almost 3 times, worked for 4 employers, have taken approximately 4 training courses and have moved at least once to accommodate job needs. On average, respondents received two promotions and have moved laterally at least once. The majority of the sample had not interrupted their career (66%); however, those who had one career break (24%) had only taken an average of 4 months leave. The sample indicated that they have had at least one mentor that was a male.

Table 5.2: Descriptive Sample Statistics

<u>Variable</u>	<u>Percentage of Respondents</u> (%)
Management Level	
Non-management	22
Junior Management	16
Middle Management	35
Senior Management	27
Organizational Hiring Practice	
Hire People from Outside	71
Hire People from Inside	29
Functional Area	
Marketing	67
Sales	6
Engineering/Product Development	4
Production	3
Human Resources	1
Administration	8
Other	12
Industry	
High-Technology (General)	17
Telecommunications	18
Hardware	10
Software	37
High-Technology Services	18
	<u>Mean Score</u>
Salary Level *	\$71,200
Organizational Size *	199 ^a
Percentage of Senior Women *	15.3
Job Experience *	2.3
Training Courses in last 5 years	4.3
Job Changes in last 5 years	2.8
Promotions in last 5 years	1.7
Career Interruptions	.5
Relocation	1.4
Number of Mentors over Career	1.2
Number of Different Employers over Career	4.1

Note: (a) Variables should not be treated as ratio data, as group sizes were uneven. According to the medians, respondents reported working in organizations with 51-100 employees.

* Information is based on the respondents' current position and working environment.

5.3 Assessment of Research Questions

The following section describes the analysis of the gender-specific model of career success. The four research questions that appear at the beginning of each section were not tested but used as a framework for the statistical tests.

5.3.1 Gender Differences in Career Experiences

Do men and women bring different career experiences to the organization? The demographics of the sample were examined and the data revealed that men and women in some cases bring different career experiences to the organization. A series of t-tests revealed that between men and women, there was a significant difference in age, percentage of senior women at the top of the organization, number of children, current salary in their current position, and organizational size. A series of cross-tabulations revealed that there was a significant gender difference in marital status, management level in their current position, and organizational hiring practice. The results of the series of t-tests revealed no significant gender differences in job experience, mobility, length of career interruptions, education level, training, and mentoring relationship. Table 5.3 provides a complete breakdown of the significant differences in career experiences between men and women.

Table 5.3: Descriptive Statistics – Significant Gender Differences

<u>Variable</u>	<u>Mean Score</u>	
	Men	Women
Age	39	32
Percentage of Senior Women *	9.5	22.3
Number of Children	1.3	.63
Salary Level*	\$82,170	\$57,240
Organizational Size	^a 150	^a 262

<u>Percentage of Respondents</u>		
(%)		
	Men	Women
Marital Status		
Single	14	49
Currently Married	72	40
Divorced, Separate	14	11
Management Level *		
Non-management	14	31
Junior Management	10	23
Middle Management	38	31
Senior Management	38	14
Organizational Hiring Practice *		
Hire People from Outside	86	52
Hire People from Inside	14	48

Note: These differences are statistically significant ($p \leq .05$).

a Variables should not be treated as ratio data, as group sizes were uneven. According to the medians, men reported working in organizations with 51-100 employees and women reported working in organizations with 101-500 employees.

* Information is based on the respondents' current position and working environment

The men in the sample were on average 39 years old, where women were much younger with an average age of 32 years. This age difference had an impact on the data, where women appeared to be less successful than men. However, this result may be due to the fact that most of the variables examined co-varied with age. Men were currently married

with one child, where the majority of women were single with no children. In comparison to the women, men have had a longer career, reporting an average of 17 years of employment. Female respondents earned a significantly lower salary than the males, with an average reported earnings of \$57,240. The average current salary for men in their current position was \$82,170. The level of management in the current position attained by women and men differed significantly. The majority of men were found in senior (38%) and middle (38%) management positions. The majority of women were found in middle management (31%) and non-management (31%) positions. Only 14% of the women studied reported being at the executive level. With regards to the hiring practice of the organization, women worked in organizations that hire people from the inside, whereas, men worked in organizations that hire people from the outside. This result may be a function of the size of the organization, where men reported working in organizations with 51-100 employees, and women reported working in organizations with 101-500 employees.

5.3.2 Gender Differences in the Degree of Relationship

Do human capital attributes, career choices and organizational opportunity structure influence men's and women's career success differently? A one-tail Fisher z test of the difference between the subgroup correlations for men and women was calculated to test gender differences in the degree of relationship (Arnold, 1982). The z-score was used to assess the degree to which one variable was more influential for one group than the other. Differences in the degree of relationship were examined for the correlation between each

independent variable and each dependent variable. The formula used to calculate the z-score is as follows:

$$Z = (r_1 - r_2) / (1/n_1 - 1 + 1/n_2 - 1)^{1/2}$$

where

r_1 = correlation for women

r_2 = correlation for men

n_1 = sample size of women

n_2 = sample size of men

Given the size of the sample studied ($n = 77$), a difference of .45 between the correlation coefficients ($z \geq 1.96$) was necessary in order to have a significant difference in the degree of relationship. However, if the sample were twice as large, a difference of only .32 between the correlation coefficients would be significant. Since the size of the sample is small, variables where the difference in correlations approaches significance ($p \leq .10$) will also be mentioned.

Table 5.4 displays the correlation coefficients between the 15 predictors and residualized salary as the criterion. The Fisher z tests revealed that only the relationship between lateral moves and residualized salary was significantly different between men and women. The results suggest that lateral moves were related to lower salaries for women but not for men ($r = .06$ versus $r = -.56$). Women's salary was explained more by lateral moves than men's salary.

The low power of the tests, due to the small sample size, may have caused some statistical significance to go undetected. Although only one significant z-score was found, it is important to discuss the correlations for women and men that were

approaching significance. The results suggest that training was significantly positively related to women's earnings, but had no effect on men's salary. As for education, a significant positive correlation was found for men but not for women. Highly educated men were likely to receive higher salaries, whereas for women training was more influential.

Table 5.4: Degree of Relationship – Residualized Salary

Dependent Variable – Studentized Residual of Current Salary			
Independent Variables	Men (r)	Women (r)	z-scores
Human Capital Attributes			
Job Relevant Attributes:			
Education	.40**	.30	-.047
Job Experience	-.02	.28	1.317
Training	.07	.50**	1.866
Home Environment Attributes:			
Marital Status (single = 0)	.17	.30	.549
Parenthood	.11	.19	.355
Career Choices			
Intermediate Career Moves:			
Inter-organizational Mobility	-.02	-.07	.218
Relocation	.16	.07	.417
Career Interruptions	-.13	-.21	.355
Lateral Moves	.06	-.56**	2.65*
Micro-level Career Moves:			
Mentoring	-.16	-.08	.363
Opportunity Structure			
Intermediate Organizational Factors:			
Organizational Size	-.15	-.05	.413
Hiring Practice (outside = 0)	-.15	-.16	.017
Senior Women	.31	.23	1.655

Note: * = $p \leq .05$, ** = $p \leq .01$, *** = $p \leq .001$, = $p \leq .10$

Table 5.5 displays the correlation coefficients between the 15 predictors and management level as the criterion. The Fisher z tests revealed that the relationship between two predictors and management level were significantly different for men and women; lateral

moves and training. The results suggest that lateral moves were significantly negatively related to women's managerial level, but had no effect on men's ($r = -.38$ versus $r = .07$). Women who made a lateral move were more likely not to move up the corporate ladder. Training was significantly positively related to women's managerial level, but had no effect on men's managerial level ($r = .41$ versus $r = -.09$). Women, who received more training, reached higher levels of management than those who did not. Lateral moves and training were better predictors of career success for women than for men.

Although two significant z-scores were found, it is important to discuss the z-scores that were approaching significance. The results suggest that education was significantly positively correlated with men's management level, but not with women's management level ($r = .35$ versus $r = .10$). Job experience was significantly correlated with women's management level, but did not affect men's management level ($r = .42$ versus $r = .02$). Women were more likely to get ahead with more time spent in their current positions. Women's and men's management level were influenced by different career choices. Changing employers was significantly positively associated with men's management level, but not with women's. The results suggest that women's management level was more associated with mobility, as relocation and lateral moves were both significantly correlated. Women, who relocated geographically, were more likely to move up the corporate ladder. However, those women who moved laterally were less likely to become managers.

Table 5.5 Degree of Relationship – Management Level

Dependent Variable – Management Level			
Independent Variables	Men (r)	Women (r)	z-scores
Human Capital Attributes			
Job Relevant Attributes:			
Education	.35*	.10	1.096
Job Experience	.02	.42*	1.710
Training	-.09	.41*	2.140*
Home Environment Attributes:			
Marital Status (single = 0)	.21	.32	.447
Parenthood	.21	.27	.294
Career Choices			
Intermediate Career Moves:			
Inter-organizational Mobility	.42**	.20	.943
Relocation	.06	.49**	1.822
Career Interruptions	-.19	.21	1.695
Lateral Moves	.07	-.38*	1.934*
Micro-level Career Moves:			
Mentoring	.12	.04	.347
Opportunity Structure			
Intermediate Organizational Factors:			
Organizational Size	-.25	-.10	1.502
Hiring Practice (outside = 0)	-.08	-.29	1.584
Senior Women	-.13	.24	1.600

Note: * = $p \leq .05$, ** = $p \leq .01$, *** = $p \leq .001$, = $p \leq .10$

Table 5.6 displays the correlation coefficients between the 15 predictors and number of promotions as the criterion. The Fisher z tests revealed that the predictors accounted for a comparable amount of the variance in the number of promotions, as no z-scores were found to be significant at the .05 level. The results suggest that lateral moves was significantly negatively correlated for both men and women ($r = -.53$ versus $r = -.37$). However, a lateral move was marginally more of a depressor of the number of promotions men receive than the number of promotions women receive.

Table 5.6: Degree of Relationship – Promotions

Dependent Variable – Promotions			
Independent Variables	Men (r)	Women (r)	z-scores
Human Capital Attributes			
Job Relevant Attributes:			
Education	.04	-.19	.972
Job Experience	.04	-.22	1.117
Training	-.16	.07	.965
Home Environment Attributes:			
Marital Status (single = 0)	.00	-.28	1.218
Parenthood	-.12	.03	.608
Career Choices			
Intermediate Career Moves:			
Inter-organizational Mobility	.00	.03	.101
Relocation	.21	.30	.396
Career Interruptions	-.22	-.11	.474
Lateral Moves	-.53***	-.37*	.686
Micro-level Career Moves:			
Mentoring	-.25	.14	1.656
Opportunity Structure			
Intermediate Organizational Factors:			
Organizational Size	.07	.29	.931
Hiring Practice (outside = 0)	-.18	.11	1.233
Senior Women	.28	.14	.595

Note: * = $p \leq .05$, ** = $p \leq .01$, *** = $p \leq .001$, = $p \leq .10$

Table 5.7 displays the correlation coefficients between the 15 predictors and the rate of salary change in career as the criterion. The Fisher z tests revealed that the relationship between lateral moves and rate of salary change over career was significantly different between men and women. The results suggest that more variance in the rate of salary change over career for women was accounted for by lateral moves, as the z-score was found to be significant at the .05 level.

The results revealed two other significant correlations, although the z-scores were not significant they were approaching significance. Inter-organizational mobility was found to be significantly positively associated with men's rate of salary change, but had no effect on women's change in salary over their career. Women who moved laterally throughout their career were likely to receive a smaller change in salary ($r = -.47$).

Table 5.7: Degree of Relationship – Rate of Salary Change Over Career

Dependent Variable – Rate of Salary Change Over Career			
Independent Variables	Men (r)	Women (r)	z-scores
Human Capital Attributes			
Job Relevant Attributes:			
Education	.12	.10	.063
Job Experience	.10	.16	.225
Training	-.09	.34	1.860
Home Environment Attributes:			
Marital Status (single = 0)	.21	.02	.823
Parenthood	.12	-.07	.825
Career Choices			
Intermediate Career Moves:			
Inter-organizational Mobility	.37*	.01	1.538
Relocation	-.16	.10	1.106
Career Interruptions	-.02	-.07	.212
Lateral Moves	.09	-.47*	2.415*
Micro-level Career Moves:			
Mentoring	-.12	-.18	.248
Opportunity Structure			
Intermediate Organizational Factors:			
Organizational Size	-.14	-.13	.058
Hiring Practice (outside = 0)	-.11	-.17	.274
Senior Women	.30	.33	.039

Note: * = $p \leq .05$, ** = $p \leq .01$, *** = $p \leq .001$, = $p \leq .10$

Table 5.8 displays the correlations between the 15 independent variables and the rate of salary change in current position. The Fisher z tests revealed that one z-score was significant at the .05 level. The results suggest that lateral moves explained more of the

variance in rate of salary change in men's current positions than women's ($r = -.37$ versus $r = .13$). Men who moved laterally received a loss in salary in their current position, as compared to those who did not move. Men who moved laterally were more likely to have a smaller change in salary in their current position ($r = -.38$), whereas for women, lateral moves had no effect on their change in earnings. Lateral moves were better at predicting men's rate of salary change in current position than women's.

Table 5.8: Degree of Relationship – Rate of Salary Change in Current Position

Dependent Variable – Rate of Salary Change in Current Position			
Independent Variables	Men (r)	Women (r)	z-scores
Human Capital Attributes			
Job Relevant Attributes:			
Education	-.32*	-.23	.368
Job Experience	.06	-.10	.685
Training	-.07	.06	.555
Home Environment Attributes:			
Marital Status (single = 0)	-.25	-.03	.915
Parenthood	.00	.09	.363
Career Choices			
Intermediate Career Moves:			
Inter-organizational Mobility	.06	.01	.242
Relocation	-.09	.29	1.622
Career Interruptions	-.04	-.12	.718
Lateral Moves	-.38*	.13	2.188*
Micro-level Career Moves:			
Mentoring	-.15	-.08	.282
Opportunity Structure			
Intermediate Organizational Factors:			
Organizational Size	.11	-.21	.447
Hiring Practice (outside = 0)	-.20	-.01	.821
Senior Women	-.08	-.05	.161

Note: * = $p \leq .05$, ** = $p \leq .01$, *** = $p \leq .001$

Overall, the results reveal that only two variables were significantly different in the degree of relationship between men and women: lateral moves and training and

development. Interestingly, the extent to which career choices influence men's and women's career success differently was not criterion-dependent. The findings indicated that the influence of a lateral move was significantly different when any measure of career success was examined. In all measures of career success, except rate of salary change in current position, women's career success was negatively explained more by lateral moves than men's career success. Training and development positively explained more of the variance in women's managerial levels than men's.

5.3.3 Gender Differences in the Form of Relationship

Do men and women receive the same marginal payoffs for their career experiences? The potential moderating effect of gender on the impact of factors predicting career success was investigated using a moderated hierarchical regression analysis. A series of moderated hierarchical regression analyses were carried out on each of the dependent variables in order to assess whether there are different forms of relationships for women and men. The form of relationship measures the determination of another variable and is described in the coefficients of the regression equation (Arnold, 1982). The predictors were entered into the equation in the following order: gender, one of the specific predictors, and the interaction between the specific predictor and gender. The interaction term was calculated as the cross product of gender and one of the independent variables. A significant interaction term indicated that the form of relationship is conditional upon gender.

After running the series of moderated hierarchical regressions for each dependent variable, the next procedure was to interpret the significant interaction terms. In the presence of a significant interaction, main effects cannot be interpreted independent of their joint effects. Thus, for each significant interaction term, two simple regressions were carried out independently for women and men. Arnold (1982) refers to this analysis as the “split group” technique. This procedure is statistically equivalent to moderated regression when one variable is dichotomous but more easily facilitates interpretation of the separate effects by gender. The following are the results of the moderated hierarchical regressions for residualized salary, management level, number of promotions, rate of salary change over career and rate of salary change in current position.

5.3.3.1 Residualized Salary

The series of moderated hierarchical regressions on residualized salary as the criterion suggested that gender moderated the effect of 1 of the 14 predictors of salary. The results suggest that salary was jointly determined by the interaction of lateral moves and gender. Table 5.9 contains the results of the split group technique used to interpret the significant interaction term.

Table 5.9: Split Group Technique – Lateral Moves

	Unstandardized Coefficients		Standardized Coefficients	t-statistic	Significance
	B	Std. Error	Beta		
Men	.036	.102	.059	.353	.726
Women	-.359	.103	-.559	-3.502	.002

Lateral moves had a negative impact on women's residualized salary level, but no impact on men's salary level. For each additional lateral move, women get negative payoffs as demonstrated by a decrease in their earnings.

5.3.3.2 Managerial Level

The results of the series of moderated hierarchical regressions on management level suggest that gender moderated the effect of 2 of the 14 predictors of managerial level. These included training, and one intermediate career move variable: relocation. The results suggest that management level was jointly determined by the interaction of training and gender, and relocation and gender. The following 2 tables contain the results of the split group technique used to interpret the significant interaction terms.

Table 5.10: Split Group Technique – Training

	Unstandardized Coefficients		Standardized Coefficients	t-statistic	Significance
	B	Std. Error	Beta		
Men	-.023	.044	-.087	-.537	.595
Women	.104	.043	.411	2.429	.022

Training did not impact men's managerial level, but had a positive impact on women's managerial level. Women received better payoffs for their investment in training than the men did.

Table 5.11: Split Group Technique – Relocation

	Unstandardized Coefficients		Standardized Coefficients	t-statistic	Significance
	B	Std. Error	Beta		
Men	.026	.064	.064	.400	.691
Women	.351	.111	.488	3.161	.003

Women and men received different payoffs for relocating geographically when managerial level was used as the measure of career success. Women, who relocated geographically for their job, reached higher management levels than men.

5.3.3.3 Number of Promotions

The series of moderated hierarchical regressions on the number of promotions as the criterion revealed that gender did not moderate the effect of the predictors on promotions. Men and women received similar payoffs for their investment in their human capital attributes, the career choices they made and the organizational opportunity structure in which they worked.

5.3.3.4 Rate of Salary Change over Career

The results of the series of moderated hierarchical regressions on rate of salary change over career suggest that gender moderated the effect of lateral moves on the rate of salary change over career. Rate of salary change over career was jointly determined by the interaction of lateral moves and gender. Table 5.12 displays the results of the split group technique.

Table 5.12: Split Group Technique – Lateral Moves

	Unstandardized Coefficients		Standardized Coefficients	t-statistic	Significance
	B	Std. Error	Beta		
Men	.784	1.524	.088	.515	.610
Women	-3.805	1.414	-.474	-2.691	.013

5.3.3.5 Rate of Salary Change in Current Position

The results of the series of moderated hierarchical regressions on rate of salary change in current position suggest that gender moderated the effect of lateral moves on the rate of salary change in current position. Rate of salary change in current position was jointly determined by the interaction of lateral moves and gender. Table 5.13 displays the results of the split group technique.

Table 5.13: Split Group Technique – Lateral Moves

	Unstandardized Coefficients		Standardized Coefficients	t-statistic	Significance
	B	Std. Error	Beta		
Men	-6.396	2.604	-.379	-2.456	.019
Women	1.942	2.847	.130	.682	.501

The results suggest that for every lateral move made by women, their rate of salary change over their career decreases; however, when rate of salary in current position was examined lateral moves had no impact. Men's moves across the organization have a bigger impact on their rate of salary change in their current position than women's lateral moves. For every lateral move, men's rate of salary in their current position will decrease. Altogether, men and women did not receive the same marginal payoffs for taking a lateral move, where a lateral move was more of a depressor of women's rate of salary change over career than men's. The opposite effect occurred when rate of salary change in current position was examined, where a lateral move was more of a depressor of men's rate of salary change in current position than women's.

In summary, the results suggest that men and women do not receive the same marginal payoffs for their career experiences. A lateral move had a bigger impact on women's

residualized salary and rate of salary change over career, where they were penalized for moving across departments. Men's lateral moves had a bigger impact on their rate of salary change in current position than women's lateral moves. Results suggested that for every lateral move made by a man, their rate of salary change in current position decreased. It seems that training and development and relocating geographically have a bigger impact on women's managerial level. Women were rewarded for investing in training courses and moving geographically, whereas, men did not receive the same payoffs for these career experiences.

5.3.4 Best Predictors of Career Success for Women and Men

Earlier analysis suggests that there are some gender differences in the factors related to men's and women's career success. In order to determine what are the best predictors of career success, a stepwise multiple regression was carried out independently for women and men for residualized salary, management level, rate of salary change over career and rate of salary change in current position. A stepwise multiple regression was carried out for the entire sample on promotions as the criterion, as no gender differences in the degree or form of relationship were found. Stepwise multiple regression provided some insight into what best predicts career success for women and career success for men.

The 14 independent variables were entered into the regression equation using stepwise model selection. At each step the variable that adds most to the prediction equation, in terms of increasing R^2 was entered (Tabachnick and Fidell, 1989). The data analyses are presented below, and are categorized according to dependent variable.

5.3.4.1 Residualized Salary

Equation 1 reveals that parenthood and inter-organizational mobility are significant predictors of women's salary ($\beta = .80$ and $-.50$). The results suggested that women who obtained higher salaries had children and remained with the same employer. When the stepwise multiple regression was carried out for men, three significant predictors emerged: education ($\beta = .53$), job experience ($\beta = -.45$), and inter-organizational mobility ($\beta = -.33$). Equation 2 suggests that the profile of what best predicts men's residualized salary is different from what predicts women's residualized salary. It seems that men who were highly educated, who did not remain in their current position for a long period of time and who remained with the same employer earned higher salaries.

Equation 1: Residualized Salary Female Respondents

$R = .691$

$\text{Adj. } R^2 = .407$

$F = 6.840$

Significant $F = .0077$

Variable	Unstandardized Coefficients		Standardized Coefficients	t-statistic	Significance
	B	Std. Error	Beta		
Parenthood	.626	.171	.794	3.665	.002
Inter-org. Mobility	-.057	.025	-.495	-2.286	.037
(Constant)	-.233	.100		-2.332	.034

**Equation 2: Residualized Salary
Male Respondents**

R = .671

Adj. R² = .391

F = 7.625

Significant F = .0007

Variable	Unstandardized Coefficients		Standardized Coefficients	t-statistic	Significance
	B	Std. Error	Beta		
Education	.481	.129	.534	3.746	.001
Job Experience	-.284	.091	-.451	-3.106	.004
Inter-org. Mobility	-.153	.067	-.327	-2.284	.030
(Constant)	-.535	.627		-.854	.400

5.3.4.2 Managerial Level

The same analysis was repeated with managerial level as the criterion. The profile for men in higher managerial positions (Equation 3) was different from the profile found for high earners. The results show that men who not only changed employers but who invested in their education were more likely to reach higher management levels (beta = .48 and .41 respectively). This is an interesting finding, as men who wanted to earn a higher salary were required to stay with the same employer, however, those who wanted to reach higher management had to change organizations. For women, the profile of top managers (Equation 4) was also different from that of high earners. The results reveal that geographic mobility was significant in predicting women's management level (beta = .50). Women were required to move, in order to attain a higher level of management.

**Equation 3: Management Level
Male Respondents**

R = .638

Adj. R² = .366

F = 9.952

Significant F = .0005

Variable	Unstandardized Coefficients		Standardized Coefficients	t-statistic	Significance
	B	Std. Error	Beta		
Education	.531	.159	.477	3.338	.002
Inter-org. Mobility	.239	.083	.413	2.889	.007
(Constant)	-.203	.769		-.264	.794

**Equation 4: Management Level
Female Respondents**

R = .498

Adj. R² = .204

F = 5.603

Significant F = .0301

Variable	Unstandardized Coefficients		Standardized Coefficients	t-statistic	Significance
	B	Std. Error	Beta		
Relocation	.337	.142	.498	2.367	.030
(Constant)	1.787	.244		7.320	.000

5.3.4.3 Rate of Salary Change over Career

Each independent variable was entered into the stepwise multiple regression for men and women separately. However, none of the coefficients were found to be significant in predicting men's rate of salary change over their career. Equation 5 shows that only the number of senior women at the top was significant in predicting women's change in salary from their first full-time to their current position (beta = .48). Women who worked in organizations that had a higher number of senior female managers were more likely to have a higher increase in their salary over their career.

**Equation 5: Rate of Salary Change over Career
Female Respondents**

R = .485

Adj. R² = .184

F = 4.611

Significant F = .0485

Variable	Unstandardized Coefficients		Standardized Coefficients	t-statistic	Significance
	B	Std. Error	Beta		
Senior Women	.218	.107	.485	2.147	.049
(Constant)	8.513	3.449		2.468	.026

5.3.4.4 Rate of Salary Change in Current Position

The results of the stepwise regression that was carried out independently for women and men revealed that no predictors were significant in predicting women's rate of salary change in current position. Equation 6 shows that three variables were significant in predicting men's change in salary from the beginning of their current position to the present: education (beta = -.33), marital status (beta = -.44), and lateral moves (beta = -.52). Single men, who did not attain the highest level of education, and who moved up as opposed to laterally, had a higher rate of salary change in their current position. These findings conflict with what was found to be the best predictors of men's current salary. The results demonstrate that education positively impacts men's earnings; however, negatively affects the rate of change in salary from the beginning of their current position. It can be concluded that men who attained a higher level of education received a higher starting salary but they have not changed as much in the current position. This stagnation may be due to the fact that the men's salaries were already close to that being earned by individuals positioned at the top of the organization.

**Equation 6: Rate of Salary Change in Current Position
Male Respondents**

R = .674

Adj. R² = .396

F = 7.778

Significant F = .0006

Variable	Unstandardized Coefficients		Standardized Coefficients	t-statistic	Significance
	B	Std. Error	Beta		
Education	-8.023	3.428	-.329	-2.340	.027
Marital Status	-21.718	7.041	-.438	-3.085	.005
Lateral Moves	-9.323	2.575	-.518	-3.620	.001
(Constant)	73.137	16.481		4.438	.000

5.3.4.5 Promotions

Earlier analysis suggests that there were no gender differences in degree of relationship or form of relationship between the factors related to men's and women' career success. Thus, a stepwise regression was carried out on the full sample. The 14 operational measures of human capital, career choices and opportunity structure served as the predictors. The results presented in Equation 7 revealed five significant predictors of promotions: job experience (beta = -.37), training (beta = .27), marital status (beta = -.27), senior women (beta = .29) and lateral moves (beta = -.66). This set of predictors explained 54% of the variance in promotions for men and women. Single, highly trained individuals, who spent a short amount of time in their current position, who did not move laterally and who worked in organizations with a larger percentage of senior women managers were more likely to receive promotions.

Equation 7: Promotions
Full Sample (Female and Male Respondents)

R = .740

Adj. R² = .499

F = 11.146

Significant F = .0000

Variable	Unstandardized Coefficients		Standardized Coefficients	t-statistic	Significance
	B	Std. Error	Beta		
Job Experience	-.3352	.098	-.372	-3.430	.001
Training	.0956	.038	.266	2.543	.014
Marital Status	-.6820	.269	-.266	-2.536	.015
Senior Women	.0185	.007	.291	2.740	.009
Lateral Moves	-.6482	.108	-.655	-5.993	.000
(Constant)	2.966	.357		8.316	.000

5.4 Summary

The analysis revealed for the sample that men and women do in fact bring different career experiences to the organization. Between men and women, there was a significant difference in age, number of children, marital status, current salary in their current position, management level in their current position, organizational size, and organizational hiring practice. The Fisher z tests revealed that only two variables were significantly different in the degree of relationship between men and women: lateral moves and training and development. From the data it was apparent that men and women received different marginal payoffs for their career experiences. Lateral moves had a stronger negative impact on women's salary and rate of salary change in career. Women who had received more training, and relocated were found to reach higher levels of management. Gender did not moderate the effect of human capital attributes, career choices and opportunity structure on promotions. A series of stepwise multiple regressions provided insight to gender differences in the best predictors of career success.

For men, the best predictors of salary were their education, job experience, and mobility across organizations. For women, the best predictors of salary were mobility across organizations and the presence of children. The best determinant of moving up the organizational ladder for men was education and inter-organizational mobility, and for women it was relocating geographically. The best predictor of women's salary increase over their career was working in a organization where the senior management was predominantly female. Interestingly for men, education, marital status and moving laterally negatively impacted their change in salary over their career. No gender differences were found in predictors of number of promotions. To summarize these findings, Table 12 presents the hypotheses that were rejected and supported. The following chapter will discuss the results of the hypothesis testing in more detail along with some important implications.

Table 14: Summary of Hypothesis Testing

Hypotheses		Results				
		Resid. Salary	Mgmt. Level	Promo. Rate	Rate of Salary – Career	Rate of Salary – Current Position
H1	Education will be more strongly positively associated with women's career success than men's career success.	X	X	X	X	X
H2	Job experience will be more strongly positively associated with women's career success than men's career success.	X	✓	X	X	X
H3a	Marriage will be negatively associated with women's career success.	X	X	X	X	X
H3b	Marriage will be positively associated with men's career success.	X	X	X	X	X
H4a	Parenthood will be negatively associated with women's career success.	X ^(a)	X	X	X	X
H4b	Parenthood will be positively associated with men's career success.	X	X	X	X	X
H5	Inter-organizational mobility will be negatively associated with women's career success and men's career success.	✓	X	X	X ^(a)	X
H6	Lateral moves will be negatively associated with women's career success and men's career success.	*	*	✓	*	*
H7	Relocation will be positively associated with women's career success and men's career success.	X	*	X	X	X
H8	Career interruptions will be more strongly negatively associated with women's career success than men's career success.	X	X	X	X	X
H9	Organizational size will be more strongly positively associated with women's career success than men's career success.	X	X	X	X	X
H10a	Hiring practice will be positively associated with men's career success.	X	X	X	X	X
H10b	There will be no relationship between hiring practice and women's career success.	✓	✓	✓	✓	✓
H11	Functional area will be positively associated with women's career success and men's career success.	X	X	X	X	X
H12	Training and development will be more strongly positively associated with men's career success than women's career success.	X ^(a)	X	X	X	X
H13	Mentoring will be more strongly positively associated with women's career success than men's career success.	X	X	X	X	X
H14a	Senior women will be positively associated with women's career success.	X	X	X	X	X
H14b	Senior women will be negatively associated with men's career success.	X	X	X	X	X

Note: The hypothesis was rejected if the correlations and the stepwise regression were not significant at the $p < .05$ level.

✓ Supported X Not Significant * Partially Supported (a) Reverse Found

CHAPTER 6: DISCUSSION

The model offered in this study predicted that the route to career success will differ between women and men. The most notable differences were expected to be in the association between home environment attributes, hiring practices of the organization and career success, as an opposite effect was expected for women and men. Women were expected to utilize their human capital attributes more, specifically benefiting from their education and job experience. Men were expected to rely more on their training and development, the hiring practice of the organization and the limited distribution of women at the upper levels of the organization. Both women and men were expected to benefit from the quality of their career choices.

This chapter discusses the main findings of the study and provides some explanations for why some hypotheses were rejected. The study employed four measures of career success: salary, managerial level, promotion rate and rate of salary change. The results regarding the four measures, in some cases, did contradict each other while some factors resulted in the same findings regardless of which measure of career success was utilized. The discussion is presented according to the three constructs in the research framework: human capital attributes, career choices and opportunity structure. A review of the results in terms of the hypotheses will be presented, followed by some implications of these findings for future research.. A new gender-specific model of career success in high-tech, developed from the results of this study, will be discussed. Finally, a summary of the findings, limitations and benefits of this study, implications and insight for future research will be discussed.

6.1 Human Capital Attributes

The following section summarizes the hypotheses based on the human capital attributes in the gender-specific model of career success. Each hypothesis is presented in a table followed by a discussion of the results.

Hypothesis	Results
Education will be more strongly positively associated with women's career success than men's career success.	Education was more strongly positively correlated to men's salary and managerial level and negatively correlated to men's change in salary in their current position. Gender did not moderate the regressions of education on career success. Education was a significant positive predictor of men's salary and managerial level, whereas it was a negative predictor of men's rate of salary in current position. Education did not predict women's career success.

Earlier research suggests that education provides the knowledge, skills and credibility for performance in high-level positions. The findings suggest that men are getting a better return for their education. Surprisingly, even though women had obtained the same level of education and area of specialization as the men studied, education had no effect on their career success.

One explanation for the absence of any correlation is that the women studied were not measured on their abilities or qualifications, but rather on their job experience. It is plausible that the employers had more confidence in men and that the women studied had to prove themselves through their job experiences.

Hypothesis	Results
Job experience will be more strongly positively associated with women's career success than men's career success.	<p>Job experience was more strongly positively correlated to women's than men's managerial level.</p> <p>Gender did not moderate the effect of job experience on career success.</p> <p>Job experience was found to be a significant negative predictor of men's residualized salary and both men's and women's rate of promotion. Job experience did not predict either men's or women's rate of salary change.</p>

Although men and women both had an average of 2 years of experience in their current position, job experience was found to have a differential impact on career success. The results indicate that job experience was more positively related to women's managerial level, whereas for men, it failed to explain any of the variance in career success. This result is partially supported by earlier research that suggests that individuals with more job assignments and who are more visible to others are more likely to move into managerial positions (Melamed, 1996).

The results suggest that the female respondents were assessed more on their job experience than the male respondents. The women studied had to possess more job experience to become a manager, whereas, the men studied were not required to have as much experience. One possible explanation for the absence of any correlation between job experience and men's career success could be that men were not measured solely on their work experience, but on other attributes, such as their level of education, personality type and interpersonal networks within and outside the organization.

The negative impact of job experience on residualized salary supports the suggestion that employers in high-tech firms still want to see candidates who have a demonstrated commitment to their work, where two years is not a sufficient amount of time (Fafard, 1998). The negative impact of job experience on salary level and number of promotions was expected. Job experience is a measure that has often been used to reflect age and career stage. Those individuals with an extensive amount of job experience are typically older individuals, who are often viewed as having reached a plateau in their career. Individuals who are perceived as being stagnant in their career are often not given the opportunity to progress or be promoted. This research controlled for the high correlation between age and salary, where salary was residualized as a function of age.

Hypothesis	Results
Training and development will be more strongly positively associated with men's career success than women's career success.	Training and development was positively correlated with women's residualized salary. There was a significant difference in the effect of training on career success, as training was positively related to women's managerial level, but had no effect on men's. Gender moderated the regression of training on managerial level. Training was a significant positive predictor of women's managerial level. Training was a significant positive predictor of men's and women's number of promotions (Beta = .2662).

Training in high-tech organizations continues to be a major concern, where individuals who do not possess the necessary computer training become obsolete and are often replaced by a younger, more qualified applicant. Training and development was included in the gender-specific model of career success, as past research revealed a differential impact, where training was of more advantage to men than to women (Tharenou, Latimer

and Conroy, 1994). The data analysis revealed a significant gender difference in the effect of training on career success; however, the effect was contrary to past research. Training was found to be positively associated with women's residualized salary and managerial level, whereas for men, training was not significantly correlated to their career success.

One explanation for the positive impact of training on women's managerial level could be that the women were being rewarded for recognizing the need to have up-to-date training in marketing technology. A final explanation is that the organizations studied believed that the women needed more skills and knowledge to become better prepared for working in management; therefore, they were required to take more training courses than the men.

Hypothesis	Results
Marriage will be negatively associated with women's career success. Marriage will be positively associated with men's career success.	Marital status was not significantly correlated with either men's or women's career success. Gender did not moderate the regression of marriage on career success. Marital status was a significant negative predictor of men's rate of salary change in current position. Marital status was a significant negative predictor of men's and women's rate of promotion.

Results of this study indicate that marital status was neither correlated with men's career success nor women's career success. One explanation for this finding could be the size and the characteristics of the sample studied. The smaller number of women studied compared to the men, compounded by the fact that only 42% of the females were married, may explain the insignificant findings.

The negative impact of marital status on men's rate of salary change in current position and on both women's and men's promotion rate, do not support earlier research. One explanation could be explained by the dynamics of the high-tech industry. Given the pace of work and time commitment expected of high-tech workers, having commitments outside the workplace is a detriment to anyone.

The results suggest that home responsibilities not only hinder women's career success, as was hypothesized, but also have a negative effect on men's career progression. This finding partially supports earlier research that suggests that home responsibilities hinder career success due to career interruptions and divided commitment between home and work. One explanation for this finding could be that the amount of home responsibilities taken on by men is increasing, a factor that may not have been studied in past research. It is evident that women still take on more home responsibilities than men; however, men's involvement is increasing slowly.

Hypothesis	Results
Parenthood will be negatively associated with women's career success. Parenthood will be positively associated with men's career success.	Parenthood was not significantly correlated to either men's or women's career success. Gender did not moderate the regressions of parenthood on career success. Parenthood was a significant positive predictor of women's residualized salary, but was not a significant predictor of men's career success.

The results reveal that there was no relationship between parenthood and men's career success. One explanation for the absence of any correlation is that the measure examines the number of children, as opposed to the number of children living with each respondent. Men were on average older than the women and reported having a smaller

number of dependent children living at home. Typically, older individuals have fewer dependents, as they have grown and left the nest, thus providing a possible explanation to why parenthood had no effect on men's career success. The age of the children could also help to explain the absence of a correlation between parenthood and men's career success, where older children are less dependent than younger children. Examining the age of the children and its effect on career success was beyond the scope of this study.

When the correlations between residualized salary and the independent variables were examined separately for men and women, parenthood was found to have a gender effect. When the sample was split into men and women, the correlation between parenthood and residualized salary was not significant. However, a combined effect occurred when the entire sample was examined, as the correlation was significant and positively related. The positive impact of parenthood on women's residualized salary is inconsistent with past research on women's careers. The descriptive statistics revealed that men had more children and earned a higher salary, whereas women earned a lower salary and had fewer children. It seems that the correlation between parenthood and residualized salary co-varied, not because they influenced each other, but because they were related to gender. More specifically, low number of children was correlated with low salary level, not because of the relationship between children and salary but because it was women who tended to have these characteristics.

The positive impact of parenthood on women's residualized salary is inconsistent with past research on women's career success. One possible explanation for the impact could

be that the women who were earning higher salaries, were able to have sufficient help to care and raise more children. The positive impact of parenthood is an anomalous finding that warrants further exploration.

The results suggest that the human capital attributes that were significant in predicting men's career success were education, job experience, training and development, and marital status. For women, job experience, training and development, marital status and the number of children were the human capital attributes that were significant in predicting career success.

6.2 Career Choices

Career choices, measured in terms of mobility within and across organizations, geographic relocation, career interruptions and lateral moves were posited to influence a person's career success. Lateral moves was included in the analysis, as past research indicates that moving laterally within an organization can have a significant negative impact on career success (Murrell, Frieze and Olson, 1996). As organizational structures become less hierarchical, especially in high-tech firms, movement within an organization may become more desirable in terms of overall success.

Hypothesis	Results
Lateral moves will be negatively associated with men's and women's career success.	<p>Lateral moves were negatively correlated with women's salary, managerial level, promotion rate and rate of salary change in career. Lateral moves were negatively correlated to men's rate of promotion and salary change in current position.</p> <p>The relationship of lateral moves to residualized salary, management level, and rate of salary change in career and current position were found to be significantly different between men and women.</p> <p>Gender moderated the regressions of lateral moves on career success.</p> <p>Lateral moves was a significant negative predictor of men's rate of salary change in current position. Lateral moves was a significant negative predictor of men's and women's rate of promotion.</p>

Although the majority of the intermediate career move factors were found to influence both men's and women's career success, lateral moves was the only variable that was found to significantly influence men's and women's career success differently. Significant gender differences were found when salary, managerial level, rate of salary change in current position and salary change over career were used as the measures of career success. Results indicate that the overall effect of lateral moves on career success was negative.

Lateral moves explained more of the variance in women's than men's career success. This finding is partially supported by earlier research that indicated that lateral moves had a detrimental affect on men's and women's short-term salary due to lack of job stability and continuity of work (Murrell, Frieze and Olson, 1996). Although men and women had taken approximately the same number of lateral moves, women attained lower

managerial levels and salary levels as compared to the men studied. One possible explanation could be that the women were simply given a new job title without commensurate pay and authority (Stewart & Gundykunst, 1982; Stroh, Brett & Reilly, 1992).

Hypothesis	Results
Inter-organizational mobility will be negatively associated with women's career success and men's career success.	<p>Inter-organizational mobility was significantly positively correlated with men's management level and rate of salary change over their career, but had no effect on women's career success.</p> <p>Gender did not moderate the regressions of inter-organizational mobility on career success. Inter-organizational mobility was a significant negative predictor of both men's and women's residualized salary.</p> <p>Inter-organizational mobility was a significant positive predictor of men's managerial level, but did not explain any of the variance in women's managerial level.</p>

Inter-organizational mobility was expected to have a negative impact on both women's and men's career success. Only when salary was used as an indication of career success did inter-organizational mobility hinder both men's and women's career success. Although the high-tech industry has been characterized by high turnover and high salaries, mobility across organizations was found to hinder both men's and women's salary level. One explanation for this finding could be that the employers viewed those individuals with a history of frequent moves across organizations as not being committed to their work, thus, not rewarding them with a high salary.

Results indicate that changing firms had a positive impact on men's managerial level. One explanation for the positive impact on men's managerial level is the hiring practice

reported. Men reported working in organizations that hire people from the outside; whereas, women reported working in organizations that primarily hire from the inside. More specifically, the firms in which the men worked often promoted top managers from the outside of the organization. A second explanation lies in the relationship between organizational size and number of vacancies. The data shows that men reported being in smaller organizations, where they can more easily attain a senior position. Women, on the other hand, reported being in larger organizations which may at least give passing attention to employment equity legislation.

Hypothesis	Results
Relocation will be positively associated with women's career success and men's career success.	<p>Relocation was significantly positively correlated with women's managerial level, but not significantly correlated with men's career success.</p> <p>Gender moderated the regressions of relocation on career success.</p> <p>Relocation was a significant positive predictor of women's managerial success, whereas it did not explain any of the variance in men's career success.</p>

Relocating geographically was hypothesized to facilitate both women's and men's career success. Results indicate that the positive impact of geographic mobility on career success was partially supported. Women received higher payoffs for moving geographically than men. One explanation could be the limited number of positions available to women at the top. In order for women to become managers, they had to move to take advantage of an opportunity.

Hypothesis	Results
Career interruptions will be more strongly negatively associated with women's career success than men's career success.	Career interruptions were not correlated with men's or women's career success. Gender did not moderate the regressions of career interruptions on career success. Career interruptions was not a significant predictor of men's or women's career success.

Typically, career interruptions have a stronger effect on women's career success, as the primary reason for a leave of absence from work is childbearing. Career interruptions were posited to have a stronger negative influence on women's career success than men's career success. The hypothesis was rejected, as career interruptions were found to have no effect on either men's or women's career success. One possible explanation for the absence of any correlation is the few leaves of absences reported. Over 50% of the sample studied reported not having taken a leave of absence. A second possible explanation may be the actual amount of time the respondent had taken. The reported average length of the career interruption was relatively short; thereby, not having serious consequences on their work and employment status. It is possible that a larger sample with more married women in mid-career would reveal significant findings. Although the type of leave was not examined in this study, it is expected that a maternity leave or an education leave is likely to have different effects on men's and women's career success.

Hypothesis	Results
Mentoring will be more strongly positively associated with women's career success than men's career success.	Mentoring was not correlated with men's or women's career success. Gender did not moderate the regressions on career success. Mentoring was not a significant predictor of men's or women's career success.

Mentoring was expected to have a positive impact on career success, as mentors provide protégés with important information that can create and strengthen their managerial skills. Respondents were asked to provide some information on their most recent mentoring relationship. Although statistical tests revealed no significant gender differences in mentoring experiences, male and female respondents indicated different mentoring roles that need be noted. Male respondents indicated that the primary role of their most recent mentor was to recommend them for assignments that required personal contact with managers, whereas, female respondents indicated that the primary role of their mentor was to convey feelings of respect to them as individuals. Unexpectedly, results indicated that mentoring had no impact on either men's or women's career success. One possible explanation for the lack of a mentoring result reflects the fast pace of the industry, where the value of past experiences is irrelevant when the industry re-invents itself in very short periods of time. A second possible explanation could be the recollection of their most recent mentoring experience. Although respondents were asked to discuss their most recent mentor, this relationship may have occurred some time ago; thus, making recollection difficult for some of the respondents.

Mentoring did not have a differential impact on career success, which is very surprising given that other studies found that gender does moderate the effect of a mentoring relationship on career success. It is possible that using Dreher and Ash's (1990) global mentoring scale may have hidden the fact that there are differences in the type of mentoring relationships. This study only examined the amount of mentoring relationship; however, there are many other aspects of mentoring that do impact career success. While

the small sample size prohibits factor analysis of the mentoring scale, the differences in the type of mentoring that suggest that there is more complexity to the mentoring relationship.

The results suggest that lateral moves and inter-organizational mobility were strong predictors of both men's and women's career success. The analysis reveals that career breaks and having a mentor did not significantly predict career success in high-tech organizations.

6.3 Opportunity Structure

Previous research suggests that the opportunity for career success is linked to three important constructs: the size of the organization, the hiring practice of the firm and the gender distribution of senior level managers. Hypotheses concerning the opportunity structure's influence on career success were not supported by the data. The following section summarizes the hypotheses based on the opportunity structure of the organization in the gender-specific model of career success.

Hypothesis	Results
Organizational Size will be more strongly positively associated with women's career success than men's career success.	Organizational size was not significantly correlated with men's or women's career success. Gender did not moderate the regressions of organizational size on career success. Organizational size did not predict either men's or women's career success.

The size of the organization was found to have no impact on either men's or women's level of success in a high-tech firm. It was expected that because the women worked in

larger firms, which typically have more vacancies, they would have a greater opportunity for receiving promotions than the men receive. However, the positive impact was not evident. It is possible that economic market factors have more of an influence than the size of the firm where individuals working in a large organization that is experiencing low returns, due to market conditions, would most likely not gain a salary increase or a promotion.

Hypothesis	Results
Organizational hiring practice will be positively associated with men's career success. There will be no relationship between organizational hiring practice and women's career success.	Hiring practice was not significantly correlated with men's or women's career success. Gender did not moderate the regressions of hiring practice on career success. Hiring practice was not a significant predictor of women's or men's career success.

There was no relationship between hiring practice of the organization and career success. One possible explanation for this could lie in the type of industry studied. The high-tech sector is a growing, fast-paced industry with varying degrees of job stability. High-tech firms are looking for talented individuals who possess the necessary skills for the competitive marketplace. The demand for qualified individuals is high, where high-tech firms find themselves using every hiring practice necessary to find the best employees. It is possible that the organizations studied did not use the traditional methods of recruiting individuals, thus explaining the absence of any correlation. A second possible explanation could be that organizations that hire from the outside are more competitive, where individuals have less opportunity there than in closed organizations.

Hypothesis	Results
Senior women will be negatively associated with men's career success. Senior women will be positively associated with women's career success.	Senior women was not significantly correlated with either men's or women's career success. Gender did not moderate the regressions of senior women on career success. Senior women had a significant positive impact on women's rate of salary change over their career. Senior women was a significant positive predictor of both men's and women's rate of promotion.

Results indicate that the number of senior women at the top of the organization was not correlated with either men's or women's career success. Although gender differences existed in the number of senior women reported, gender did not moderate the effect of the relationship between gender distribution and career success. The number of senior women at the top of the organization had a positive impact on women's rate of salary change and on men's and women's rate of promotion. One explanation for the positive impact on the number of promotions received could be that organizations with a higher percentage of women at the top simply have more openings, thus providing more opportunity for both women and men. A second possible explanation could be that the talent pool within the high-tech industry is diminishing, where firms are forced to hire and promote women, regardless of their personal preference.

The results suggest that the opportunity structure of the organization is not a strong determinant of women's or men's career success. The data analyses reveal that only the percentage of women at the top of the organization was significant in predicting both men's and women's rate of promotions. The organizational size and the hiring practice

of the organization were not significant in predicting either women's or men's career success.

6.4 Summary

The data analysis reveals that human capital attributes were most important in predicting women's and men's career success. Some decisions regarding mobility and the gender distribution of the top of the organization were important determinants. However, human capital attributes were better predictors of men's and women's career success. Although human capital attributes were the best predictors of men's and women's career success, men and women were rewarded for different kinds of human capital. Men benefited more from their education, where women needed to rely more on their job experience and training. Figure IV illustrates the modified model of the gender differences in the predictors of career success.

Figure IV: Model of Predictors of Men's Career Success in High-Tech

Figure V: Model of Predictors of Women's Career Success in High-Tech

Human Capital Attributes

Career Choices

Opportunity Structure

6.5 Implications

The study examined gender differences in the predictors of career success in the high technology industry. When examining predictors of career success, one must be sensitive to the fact that gender differences do exist. Therefore, one must be very cautious when discussing the factors that explain the variance in career success.

The results of this study have potential implications for both men and women working in high-tech organizations. For women, a complicated picture emerged where different profiles were associated with different dependent variables. This research suggests that for women to become successful in high-tech, they need some job-relevant human capital, either in the form of job experience or training. Women must rely more on the career choices they make, rather than their educational background. In order to achieve a higher salary level, women must avoid moving across organizations. For women to become managers, they must make some sacrifices, such as delaying a family. Females must relocate geographically in order to achieve a managerial position. Women may have to choose organizations that are more women-friendly in order to become successful.

Success for a man is dependent on very different factors. In order for men to become successful, they must concentrate on enhancing their job-relevant human capital attributes in the form of education. Success, in terms of salary, is mainly dependent on education and certain career choices, such as moving across organizations. For men to become successful managers, they must obtain a high-level of education, gain valuable work

experience and move between organizations. One key finding that emerged is the value of training for both women's and men's level of career success. It seems apparent for both genders that high-tech training is the main factor that leads to a high rate of promotion.

Although the population for this research is unknown, employers must recognize that women and men face very different challenges within high-tech organizations. High-tech employers must concentrate on creating a work environment that presents career opportunities for both women and men. If organizations are planning to counsel their employees on career development, they must develop different curriculum for men and for women that would recognize women's disadvantages in the workplace. Employers must concentrate on creating managerial positions for women, as the implication is that valuable women will leave in search of an organization that values its female employees.

6.6 Limitations

In conducting research one must acknowledge that the existence of limitations is inevitable. The main limitation of this study was the size of the sample. The small sample resulted in low statistical power; perhaps, allowing some significant results to go undetected. Different results might have been attained if the sample studied was larger and involved a selected number of high-tech firms in each industry specialization. In addition, the low response rate raises some concerns about the representativeness of the group of respondents.

Another limitation was that the population was unknown, thus making generalization and interpretation of the results very difficult. Given the uniqueness of the sample, it was difficult to generalize the career patterns to the high-tech industry as a whole. However, some overlap to this research was expected from other research on predictors of career success. The results indicated that the high-tech industry possessed distinct characteristics from other industries, such as high turnover and high skills set; thus, making it worthy of study in its own right.

Most of the responses are based on self-reported data. A common problem in research is that in using this type of data we must rely on the accuracy of the respondent. We risk having information that is misrepresentative, as respondents may answer based on what they think to be socially acceptable. Respondents may also misinterpret the questions and provide information that is not related. To compensate for this limitation, a section for comments was provided in the questionnaire to give the respondents an opportunity to provide additional insight into existing responses or additional information regarding transitions made throughout their career.

A major limitation to this research were the correlations between age, salary level and management level. The problem was that age is reflective of an individual's career cycle, where an older individual is more likely to be at a higher level in the organization and receive a higher income. Although, salary level was corrected for age, management level was not. Therefore, in some cases the men who were older appeared to be more successful than the women.

Some of the measures used were a limitation of this research. The lack of support for some hypothesized findings may be a result of those variables not accurately measuring the construct, such as job experience and mentoring.

Another limitation of this research is the use of hierarchical position as the measure of management level. The organizations that the sample was drawn from varied with respect to size. Applying a common scale to measure hierarchical level may have skewed the results, forcing respondents to indicate a level that may not have corresponded to their organization's hierarchy. To decrease the chance of misrepresentation of management levels, a broad hierarchical classification was used, although this had the effect of limiting variance.

The two home environment variables have some limitations. Marital status failed to consider the impact of the employment status of the spouse. It is important to examine the household income, as it can significantly impact mobility of the main breadwinner. A more detailed look at parenthood is necessary to adequately measure the effect of children on career success. This research failed to examine the impact of elder and childcare on career success.

The measure of training has some limitations. Past literature provided little guidance on measuring the impact of training. It seems apparent that a more detailed look at the types of training courses taken may have resulted in different findings.

The lack of a clear sampling frame of high-tech organizations posed some problems. Although the convenience sample was useful in obtaining a wide variety of respondents from different organizations, it made it very difficult to assess their involvement in the high-tech industry. The lack of a clear definition led to the removal of several questionnaires, as they did not pertain to the sample being studied.

6.7 Research Benefits and Suggestions for Future Research

This study provided some evidence on what career experiences influence men's and women's career success in high-tech organizations. Through analysis of the model it was found that gender has an effect on training and development and lateral moves and that career success is not gender-blind.

This research provided some insight into the impact of gender distribution, mentoring and training and development, factors that were not examined together in past research. This study provided some evidence of the importance of training in high-tech organizations. This finding was not surprising, as the high-tech industry is constantly changing, where individuals must be open to this change and constantly enhance their skills in order to achieve success. This research provided some insight into high-tech industry conditions and their effects on career paths, an area that has had minimal attention in past research. Although mentoring did not significantly explain the variance in men's and women's career success, future research may want to examine other aspects of the mentoring relationship. Researchers may want to examine the effect mentor roles, gender of the

mentor, and time spent between the mentor and the protégé have on men's and women's career success.

Future researchers must acknowledge the importance of examining the degree and form of the relationship between different factors and career success. In many instances, this analysis provided some valuable insight on the different impact of factors on men's and women's career success. A follow-up study of these individuals as they enter into different career stages to examine the effect of human capital attributes, career choices and opportunity structure variables on career success would be an important contribution to future work in the area of career development in high-tech.

This research embraces the challenges faced by men and women, and provides some insight into what high-tech employees can utilize to enhance their career development. This study's examination of past significant findings and the inclusion of new variables are aspects that distinguish it from other studies on careers. The results of this study will help to create a greater understanding of the dynamics and complexities of careers in the high-tech industry and will provide a foundation from which other researchers can build upon.

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Appendix 1: Melamed's Moderated Hierarchical Results (1995b)

VARIABLES		HYPOTHESES (b) CAREER SUCCESS	RESULTS				
			RELATIVE WAGES			MANAGERIAL LEVEL	
HUMAN CAPITAL ATTRIBUTES		Women (r)	Men (r)	F (1, 454) Interaction	Women (r)	Men (r)	F (1, 454) Interaction
Job Relevant Attributes:	Men < WOMEN						
Education		.28	.10	1.76	.07	.09	<1.00
Job Experience		-.03	-.01	<1.00	.35	.22	<1.00
Mental Ability		.07	.10	<1.00	.14	.07	<1.00
Personality Profile:	MEN > Women						
Extroversion		.07	.25	5.33	.09	.15	<1.00
Self Confidence		-.04	.09	2.08	.06	.13	1.38
Independence		.04	-.04	<1.00	.05	-.07	1.79
Toughness		.06	.22	3.86	.20	.14	<1.00
Self-control		-.06	-.08	<1.00	.06	.09	<1.00
Home Environment:	MEN +ve, WOMEN -ve						
Marital Status		-.23	.01	4.39	.02	.14	2.15
Parenthood		-.20	.01	4.07	-.13	.00	1.50
CAREER OPTIONS							
Macro Career Choices:	MEN > Women						
Job Type		.02	.11	1.59	.31	.20	<1.00
Occupational Level		.01	.05	<1.00	.34	.36	<1.00
Intermediate Career Moves:	MEN = WOMEN						
Job Changes		-.01	-.13	2.38	.41	.15	3.89
Employer Changes		.06	-.04	<1.00	.07	-.02	<1.00
Career Interruptions		(a)	(a)	(a)	(a)	(a)	(a)
Relocation		(a)	(a)	(a)	(a)	(a)	(a)
OPPORTUNITY STRUCTURE							
Macro Societal Factors:	MEN > Women						
Market Climate		.01	.07	<1.00	.02	.20	4.53
Unemployment		.05	.05	<1.00	-.10	.22	12.61
Intermediate Org. Factors:	Men < WOMEN						
Organizational Size		.05	-.14	4.81	.24	.08	1.07
Labour Market Openness		-.01	.13	2.63	-.07	-.07	<1.00
Cohort Competition		.07	.17	2.07	-.30	-.10	2.73
Industry Sector (public = 0)		-.02	.11	2.04	-.10	-.04	<1.00
Industry Type		-.02	.18	3.89	.04	-.02	<1.00
Micro Job Factors:	Men < WOMEN						
Job Function (staff = 0)		-.15	.03	2.61	.17	.13	<1.00
Occupational Prosperity		.02	-.04	<1.00	-.18	-.03	1.75

Correlations between Career Success and Predictors and Interaction Term between Gender and each Predictor from the Moderated Hierarchical Regression.

Note: All correlations $\pm .13$ are significant at $p \leq .05$. All correlations $\pm .16$ are significant at $p \leq .01$.

$F(1, 454) = 3.86, p \leq .05$.

(a) Results not provided.

(b) Career success was measured by four variables (salary level, managerial level, promotion rate and responsibility) in the proposed hypotheses.

Appendix 2: Melamed's Multiple Regression Analysis (1995b)

VARIABLES	HYPOTHESES (d)	RESULTS				
		RELATIVE WAGES		MANAGERIAL LEVEL		INTERPRETATION
HUMAN CAPITAL ATTRIBUTES	CAREER SUCCESS	Women (Adj. R ²)	Men (Adj. R ²)	Women (Adj. R ²)	Men (Adj. R ²)	
Job Relevant Attributes	Men < WOMEN	.070	.002	.130	.055	✓ Men < WOMAN (a)
Personality Profile	MEN > Women	.000	.051	.051	.035	✓ MEN > Women (b)
Home Environment	MEN +ve, WOMEN -ve	.066	.002	.056	.050	✗ M no effect, ✓ W -ve (b)
CAREER OPTIONS						
Macro Career Choices	MEN > Women	.000	.006	.112	.133	✗ Men < WOMEN (c)
Intermediate Career Moves	MEN = WOMEN	.000	.008	.168	.023	✗ Men < WOMEN (c)
OPPORTUNITY STRUCTURE						
Macro Societal Factors	MEN > Women	.000	.000	.001	.067	✓ MEN > Women (c)
Intermediate Org. Factors	Men < WOMEN	.000	.026	.123	.000	✓ Men < WOMEN (c)
Micro Job Factors	Men < WOMEN	.014	.000	.046	.007	✓ Men < WOMEN (c)

VARIABLES	HYPOTHESES (d)	RESULTS				
		RELATIVE WAGES		MANAGERIAL LEVEL		INTERPRETATION
HUMAN CAPITAL ATTRIBUTES	CAREER SUCCESS	Women (F)	Men (F)	Women (F)	Men (F)	
Job Relevant Attributes	Men < WOMEN	6.81***	1.15	12.52****	5.27***	✓ Men < WOMAN (a)
Personality Profile	MEN > Women	<1.00	3.73**	3.52**	2.62*	✓ MEN > Women (b)
Home Environment	MEN +ve, WOMEN -ve	9.19***	1.23	7.86***	6.93**	✗ M no effect, ✓ W -ve (b)
CAREER OPTIONS						
Macro Career Choices	MEN > Women	<1.00	1.62	15.62****	18.16****	✗ Men < WOMEN (c)
Intermediate Career Moves	MEN = WOMEN	<1.00	1.94	24.39****	3.62*	✗ Men < WOMEN (c)
OPPORTUNITY STRUCTURE						
Macro Societal Factors	MEN > Women	<1.00	<1.00	1.17	9.01***	✓ MEN > Women (c)
Intermediate Org. Factors	Men < WOMEN	<1.00	2.20	7.50****	<1.00	✓ Men < WOMEN (c)
Micro Job Factors	Men < WOMEN	2.70*	<1.00	6.60***	1.77	✓ Men < WOMEN (c)

Note: * $p \leq .05$.

** $p \leq .01$.

*** $p \leq .001$.

**** $p \leq .0001$.

(a) Expected effect was found for both measures of career success.

(b) Effect limited only to salary level.

(c) Effect limited only to managerial level.

(d) Career success was measured by four variables (salary level, managerial level, promotion rate and responsibility) in the proposed hypotheses.

Dear Respondent:

Zone5ive and the School of Business at Carleton University have joined forces to gain a better understanding of the careers of business people in high technology. Little is known about the career paths and transitions of those working in this fast paced industry. Professional associations, like Zone5ive, and universities and colleges can better meet the development needs of high tech professionals by knowing what their career experiences are. That is why we are asking you to complete the enclosed questionnaire. Some issues we are interested in are career advancement, mentoring relationships, and gender differences in career patterns.

The answers all are quite brief, usually involving checking a box or writing a few words or numbers on a line. It should take only 15 minutes of your time. *To ensure that the full range of experiences is known, it is important that we hear from you.* To get a good picture of your career, it is important that you answer all the questions.

Neither your name nor any information that can identify you appears on the questionnaire. So, all answers are anonymous. Only aggregate information will be used in reporting results.

Please return the enclosed postcard once you have mailed your completed questionnaire. When we receive your postcard, you will be entered in a draw to win a Zone5ive 1998/99 season's pass and we will take your name off of our follow-up list. To be eligible for the draw, your postcard must be received by September 24, 1998.

The results of the survey will be presented at a Zone5ive meeting. If you would like to receive a direct response or have any questions while filling out the survey, please contact Louise Heslop at 520-2600, ext. 2378.

We look forward to receiving your completed questionnaire and thanks for your help.

Sincerely,

Louise Heslop
Professor
School of Business
Carleton University
Member, Zone5ive Cockpit Crew

Peter Eddison
Chair
Zone5ive

Michelle Kealey
Graduate Student (MMS)
Carleton University
Winner of 1997 Zone5ive
High-Tech Marketing Student Award

SECTION I Background Information

First we would like to learn about your background and training experiences.

1. What level of education have you attained? Please specify field of specialization where indicated (e.g. commerce, engineering). Indicate all post-secondary programs completed.

☐ High school or CEGEP certificate	
☐ Some college or university	Field _____
☐ Community college or technical college	Field _____
☐ Bachelor's degree	Field _____
☐ Master's degree or professional designation	Field _____
☐ Doctoral degree	Field _____

2. In the last 5 years, how many times have you participated in training courses of at least 2 days duration in each of the following categories:

	Total	How many of these were certificate courses?
Organized and funded by your employer	_____	_____
Organized by an outside organization, but your employer funded you	_____	_____
Organized by an outside organization, but your employer did not fund you	_____	_____

3. How many courses have you taken in each of the following topics, during **either** your formal education or subsequent training? (Count individual courses within a program separately, so a program with five modules or courses would be counted as 5 courses).

Marketing	_____
High-tech business	_____
High-tech marketing	_____

4. What areas of training and development in high-tech marketing, if any, would you like to receive? Check all that apply.

☐ International marketing
☐ Distribution/Channels
☐ Promotion
☐ Publicity
☐ Other (Please specify) _____ | ☐ New product management
☐ Existing product management
☐ Pricing
☐ Competitor analysis |
|---|---|

5. What other training and development would you like to receive in the next five years?

SECTION II Your Career

These few questions pertain to your career as a whole, which will help us gain a better understanding of your experiences.

1. Please answer the four questions that appear in the first row of the following table. Place an 'x' in the box(es) next to the response that best answers the question.

Industry Type	(a) What industry are you currently working in?	(b) In what industry is the bulk of your work experience?	(c) If you are currently working in the high-tech industry, please indicate the industry you worked in just prior to joining the high-tech industry.	(d) Please check all the industries that apply to your career as a whole.
High Technology:				
Telecommunications				
Hardware				
Software				
Services				
Manufacturing (excluding high-tech)				
Services				
Government				
Trade (retail and wholesale)				
Finance, insurance, and real estate				
Training and Education				
Construction				
Resources				
Utilities				
Transportation				
Other (please specify)				

2. In what year did you begin work with your current employer? 19____
3. How many different employers have you worked for in your career? (Since you finished school or finished your first post-secondary program). _____
- 4a. In the last 5 years, how many times have you changed jobs? (Including changing positions with the same employer). _____
- b. Of these, how many would you consider promotions? _____
5. How many of the job changes during your entire career have involved a change in the location of your work of at least 50 kilometers? _____
6. How many leaves of absences from work have you taken during your career? _____
Please indicate the total months _____

Career History

In this section we would like to learn more about some of the specific positions you have held throughout your career.

A. Current Position:

1. What was the year you started this position? 19____
2. What was your approximate annual gross starting salary (including bonuses and commissions)? _____ (Round to the nearest \$10,000)
3. What is your approximate annual current gross salary (including bonuses and commissions)? _____ (Round to the nearest \$10,000)
4. What level is this position at?
☐ Senior Management/Executive ☐ Junior Management
☐ Middle Management ☐ Non-management
5. What functional area best describes this position?
☐ Marketing ☐ Production ☐ Other _____
☐ Sales ☐ Human Resources
☐ Engineering/Product Development ☐ Administrative
6. Approximately, how many people work in this organization?
☐ Less than 10 ☐ 26-50 ☐ 101-500
☐ 10-25 ☐ 51-100 ☐ Over 500
7. Is this job in a high-tech organization? ☐ Yes ☐ No
8. If this job is your first position of full-time employment, check here ☐ and turn to Section IV, p. 6.

B. Position Prior to Current Position:

1. What was the year you started this position? 19____ Year Ended? 19____
2. What was your approximate annual gross starting salary (including bonuses and commissions)? _____ (Round to the nearest \$10,000).
3. What level was this position at? ☐ Senior Management/Executive ☐ Junior Management
 ☐ Middle Management ☐ Non-management
4. What functional area best describes this position?
 ☐ Marketing ☐ Production ☐ Other _____
 ☐ Sales ☐ Human Resources
 ☐ Engineering/Product Development ☐ Administrative
5. Approximately, how many people worked in this organization?
 ☐ Less than 10 ☐ 26-50 ☐ 101-500
 ☐ 10-25 ☐ 51-100 ☐ Over 500
6. Was this job in a high-tech organization? ☐ Yes ☐ No
7. If this is your first position of full-time employment, check here ☐ and turn to Section IV, p. 6.

C. Position Prior To One Described above under B:

1. What was the year you started this position? 19____ Year Ended? 19____

2. What was your approximate annual gross starting salary (including bonuses and commissions)? _____ (Round to the nearest \$10,000).
3. What level was this position at? ☐ Senior Management/Executive ☐ Junior Management
☐ Middle Management ☐ Non-management
4. What functional area best describes this position?
☐ Marketing ☐ Production ☐ Other _____
☐ Sales ☐ Human Resources
☐ Engineering/Product Development ☐ Administrative
5. Approximately, how many people worked in this organization?
☐ Less than 10 ☐ 26-50 ☐ 101-500
☐ 10-25 ☐ 51-100 ☐ Over 500
6. Was this job in a high-tech organization? ☐ Yes ☐ No
7. If this is your first position of full-time employment, check here ☐ and turn to Section IV, p. 6.

D. FIRST POSITION in High-tech: If you do not work in High-tech, please check here ☐ (Go to E below)

1. Is this position already described above? ☒ No, please continue ☐ Yes, in ☐ A ☐ B ☐ C (Go to E below)
2. What was the year you started this position? 19____ Year Ended? 19____
3. What was your approximate annual gross starting salary (including bonuses and commissions)? _____ (Round to the nearest \$10,000).
4. What level was this position at? ☐ Senior Management/Executive ☐ Junior Management
☐ Middle Management ☐ Non-management
5. What functional area best describes this position?
☐ Marketing ☐ Production ☐ Other _____
☐ Sales ☐ Human Resources
☐ Engineering/Product Development ☐ Administrative
6. Approximately, how many people worked in this organization?
☐ Less than 10 ☐ 26-50 ☐ 101-500
☐ 10-25 ☐ 51-100 ☐ Over 500
7. If this is your first position of full-time employment, check here ☐ and turn to Section IV, p. 6.

E. FIRST POSITION of Full-time Employment:

1. What was the year you started this position? 19____ Year Ended? 19____
2. What was your approximate annual gross starting salary (including bonuses & commissions)? _____ (Round to the nearest \$10,000).
3. What level was this position at? ☐ Senior Management/Executive ☐ Junior Management
☐ Middle Management ☐ Non-management
4. What functional area best describes this position?
☐ Marketing ☐ Production ☐ Other _____
☐ Sales ☐ Human Resources
☐ Engineering/Product Development ☐ Administrative
5. Approximately, how many people worked in this organization?
☐ Less than 10 ☐ 26-50 ☐ 101-500
☐ 10-25 ☐ 51-100 ☐ Over 500

SECTION IV

Current Working Environment

We would like to get some more information on your current working environment and experiences.

Please consider your current position when answering the following four questions.

1. How many levels of authority are there between you and the chief executive? _____
2. How many levels of authority are there below you in the organization? _____
3. How many people do you directly supervise? _____
4. How many people do you indirectly supervise? (That is, they report to supervisors who report to you.) _____
5. When your organization hires for a new position or to replace personnel in a position, does it fill the position with:
 - ☐ People from outside the organization primarily
 - ☐ People from within the organization primarily
- 6a. How many senior managers (Vice-President and above) are there in your current organization? _____
- b. How many of these are women? _____
7. Are your colleagues in your immediate work environment:
 - ☐ Mostly female
 - ☐ Mixture of male and female
 - ☐ Mostly male

SECTION V

Information on Mentoring

There is a lot of talk these days about the importance of mentoring. A mentor is a senior employee who has provided support and guidance to you in managing your career. We would like to get a better understanding of how mentoring may have affected your career.

1. In your career, have you ever had a mentor? If no, please turn to Section VI, p.8.
☐ Yes ☐ No
2. How many mentors have you had throughout your career? _____
3. Were the mentors throughout your career:
☐ Predominantly female
☐ Predominantly male
☐ A mixture of both female and male
4. Thinking about your most recent mentor, is this person in the high-tech industry?
☐ Yes ☐ No
5. On average, how much time did you spend per month with your most recent mentor? _____ hrs.
6. Thinking again about your most recent mentor, please circle the number that best answers the following statements.

To what extent has this person ...

	Not at all			To a ver large exten	
Given or recommended you for challenging assignments that present opportunities to learn new skills.....	1	2	3	4	5
Given or recommended you for assignments that required personal contact with managers in different parts of the company.....	1	2	3	4	5
Given or recommended you for assignments that increased your contact with higher level managers.....	1	2	3	4	5
Given or recommended you for assignments that helped you meet new colleagues....	1	2	3	4	5
Helped you finish assignments/tasks or meet deadlines that otherwise would have been difficult to complete.....	1	2	3	4	5
Protected you from working with other managers or work units before you knew about their likes/dislikes, opinions on controversial topics, and the nature of the political environment.....	1	2	3	4	5
Gone out of his/her way to promote your career interests.....	1	2	3	4	5
Kept you informed about what is going on at higher levels in the company or how external conditions are influencing the company.....	1	2	3	4	5
Conveyed feelings of respect for you as an individual.....	1	2	3	4	5
Conveyed empathy for the concerns and feelings you have discussed with him/her....	1	2	3	4	5
Encouraged you to talk openly about anxiety and fears that detract from your work....	1	2	3	4	5
Shared personal experiences as an alternative perspective to your problems.....	1	2	3	4	5
Discussed your questions or concerns regarding feelings of competence, commitment to advancement, relationships with peers and supervisors or work/family conflicts.	1	2	3	4	5
Shared history of his/her career with you.....	1	2	3	4	5
Encouraged you to prepare for advancement.....	1	2	3	4	5
Encouraged you to try new ways of behaving on the job.....	1	2	3	4	5
Served as a role model.....	1	2	3	4	5
Displayed attitudes and values similar to your own.....	1	2	3	4	5

SECTION VI
Personal Information

We would like to be able to describe the group of people who participated in this study. We would appreciate it if you could provide the following personal information. This information, as well as your other responses, will remain confidential.

-
1. In what year were you born? 19_____
 2. Are you:
☐ Male ☐ Female
 3. What is your marital status?
☐ Single, never married
☐ Currently married
☐ Divorced, separated, or widowed
 - 4a. How many children do you have? _____
 - b. How many are currently living with you? _____
-

SECTION VII
Your Comments

If you have any other information that would help us to better understand your career it is very welcome. If you have any comments on this study please indicate them in the space provided.

THANK YOU FOR YOUR HELP!

Please place your completed questionnaire in the enclosed envelope and return as soon as possible. In order to be eligible for the draw, please fill in and return the attached postcard by September 24, 1998. If you have any questions or would like a copy of the results mailed to you, please call Dr. Louise Heslop at 520-2600, ext. 2378.

Appendix 4: Variables - Names and Definitions

Data Code Name	Model Name	Variable Type
Q60	Gender	Moderator
Q1	Education (Highest Level Attained)	Independent Variable
Edufield	Educational field of highest level	“
Jobexper	Job Experience (yrs in current position)	“
Training	Training and Development (Q2_1a+Q2_2a+Q2_3a)	“
Q61	Marital Status	“
Q62a	Parenthood (No. of children)	“
Q8	Inter-organizational Mobility - # diff. employers	“
Q9_a	Intra-organizational Mobility - # job changes	“
Q10	Relocation (# of times)	“
Q11_2	Career Interruptions (missing = 0)	“
nummentor	No. of mentors (Q 54 with missing = 0)	“
Q17	Organizational Size – (re-code with midpoint)	“
Q50	Hiring Practice (re-code with dummy – outside = 0)	“
Seniowom	Male Hierarchy = (Q51_b/Q51_a)	“
Q16	Job Type – Functional Area	“
Lateral	Lateral Moves – (Q9_a – Q9_b)	“
Q14	Raw Salary – Current Position	Dependent Variable
Ressal	Studentized Residuals - Sal. F(age)	“
Q15	Managerial Level – Current Position	“
Q9_b	Promotion Rate – Number of Promotions over 5yrs	“
salchgca	Rate of Salary Change - Career	“
salchgcu	Rate of Salary Change – Current Position	“