# A STUDY OF FACTORS INFLUENCING FEMALE NONTRADITIONAL CAREER CHOICE IN NEWFOUNDLAND AND LABRADOR

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# A STUDY OF FACTORS INFLUENCING FEMALE NONTRADITIONAL CAREER CHOICE IN NEWFOUNDLAND AND LABRADOR

BY

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A Thesis subjmitted in partial fulfillment
of the requirements for the degree of
Master of Education

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## ABSTRACT

The purpose of this study was to examine, at three developmental levels, some of the factors which may have influenced the nontraditional career choices of women employed in many sectors of the workforce in Newfoundland and Labrador. The intention was to determine to what degree and at what level of development these factors were present or absent in the seven nontraditional occupational categories surveyed. The knowledge thus gained could be used to increase the number of young women who may consider choosing a nontraditional career.

This survey was carried out by means of a questionnaire which examined the internal factors of self-efficacy, interests, and work values. It also examined the external factors of family background, educational background, significant others, and previous work experiences. These factors were examined retrospectively at the three developmental stages of childhood, adolescence and early adulthood. The questionnaire was mailed to 764 females working in nontraditional occupations throughout Newfoundland and Labrador: A return rate of 36.5% was realized.

The sample consisted of 279 females representing

seven occupational categories. These were: the professionals, the science/engineers, the forces, the technologists, the tradeswomen, the semi-skilled workers and those working in primary resources.

The basic analysis procedure was to compare the seven occupational groupings on their responses to the various questions. Comparisons were made developmentally within each group and between groups at each developmental level.

The findings of this study indicated, that although there were differences between the groups some factors appeared to be common to most nontraditional career choices. These common factors were: a high level of belief in one's own abilities, a high level of aspiration, a background of nontraditional interests and work experience, a high level of proficiency in math and science where required, and most importantly a solid foundation of support either from the family or from significant others.

Certain factors had greater significance for some groups than for others. The professional and science/engineering groups reported very high levels of academic self-efficacy and educational achievement.

However, they differed greatly in that the science/ engineers also reported a great many other nontraditional factors in their backgrounds. The forces reported the largest number of traditional factors and they were the only group which expressed any great interest in public speaking.

The technologists and trades groups both reported high levels of interest in fixing things and working with things. Their masculine relatives provided a high rate of role models for the technologists whereas the trades group relied on their instructors, counsellors and women's groups for support and guidance.

The semi-skilled and resource groups reported high levels of support and encouragement from their husbands and boyfriends. Both also expressed a high level of interest in outdoor activities and working with their hands. The semi-skilled reported a fairly high level of risk taking whereas the resource group had the highest level of commitment of all the groups. This group also depended on their neighbour for support of their nontraditional careers.

Recommendations for programming included a program in career guidance for junior high schools, parental

involvement programs, and programs whereby the schools could provide equality of opportunity for all students. Recommendations for research included studies to investigate: the means of improving female self-efficacy; background factors related to nontraditional interests; support systems at lower socio-economic groups; evaluation of present guidance services and; the potential of women's support groups.

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TABLE OF CONTENTS


| | | PAGE |
|---|---|---|
| ABSTRACT | | ii |
| ACKNOWLEDGEMENTS | | vi |
| LIST OF TABLES | | ix |
| LIST OF FIGURES | | xi |
| CHAPTER | | |
| I | Introduction to the Study | 1 |
| | Statement of Purpose | 1 |
| | Significance of Study | 1 |
| | Rationale | 6 |
| | Theoretical Framework | 7 |
| | Factors related to Nontraditional Career Choices | 13 |
| | Research Questions | 18 |
| | Definition of Terms | 20 |
| | Limitations | 21 |
| II | Review of the Literature | 23 |
| | Theoretical Foundation | 23 |
| | Socialization and Sex-Role Stereotyping | 33 |
| | Factors in Nontraditional Career Choice | 38 |
| | Empirical Studies | 70 |
| III | Methodology | 77 |
| | Procedures | 77 |
| | The Sample | 77 |
| | The Instrument | 81 |
| | The Survey Procedures | 88 |
| | The Analysis | 92 |
| IV | Analysis of Data | 93 |
| | Research Question 1 | 93 |
| | Research Question 2 | 101 |
| | Research Question 3 | 112 |
| | Research Question 4 | 126 |
| | Research Question 5 | 144 |
| | Research Question 6 | 161 |
| | Research Question 7 | 180 |

CHAPTER PAGE

V Conclusions, Implications and Recommendations ..... 190
Group I The Professionals ..... 190
Group II The Science/Engineers ..... 192
Group III The Forces ..... 193
Group IV The Technologists ..... 195
Group V The Trades ..... 197
Group VI The Semi-Skilled ..... 199
Group VII The Primary Resource Workers ... 200

Implications for Career Decision-Making . 203

Support of Literature ..... 223

Recommendations for Programs ..... 229

Recommendations for Research ..... 234

BIBLIOGRAPHY ..... 237

APPENDIX ..... 248

## LIST OF TABLES


| TABLE | | PAGE |
|---|---|---|
| 1 | Blishen-McRoberts Rankings ..... | 78 |
| 2 | Sample Size ..... | 90 |
| 3 | Composition of Sample ..... | 90 |
| 4 | Percentage of Above Average Response to Questions Concerning Self-Efficacy at Three Stages ..... | 96 |
| 5 | Childhood Interests, Percentage of Responses to Each Item ..... | 104 |
| 6 | Adolescent Interests, Percentage of Responses to Each Item ..... | 105 |
| 7 | Adult Interests, Percentage of Responses to Each Item ..... | 106 |
| 8 | Percentages of Positive Responses to Questions Concerning Work Values at Three Stages ..... | 117 |
| 9 | Percentages of Above Average Responses to Questions Concerning Parental Interest at Three Stages ..... | 130 |
| 10 | Level of Parents' Education ..... | 131 |
| 11 | Percentages of Responses to Questions Concerning Fathers' and Mothers' Occupational Mothers' Traditional or Nontraditional Employment and Perceived Success of Parents ..... | 132 |
| 12 | Percentages of Responses to Questions Concerning Educational Background of Respondents ..... | 148 |
| 13 | Percentages of Positive Responses to Questions Concerning Career Counselling and Decision-Making ..... | 156 |

| TABLE | | PAGE |
|---|---|---|
| 14 | Percentages of Responses to Questions on Importance of Significant Others in Childhood | 163 |
| 15 | Percentages of Responses to Questions on Importance of Significant Others in Adolescence | 164 |
| 16 | Percentages of Responses to Questions on Importance of Significant Others in Adulthood | 165 |
| 17 | Percentages of Responses to Questions on Aspects of Influence of Significant Others | 181 |
| 18 | Percentages of Responses to Questions on Work Experience at Three Stages | 184 |
| 19 | Demographic Information | 204 |

## LIST OF FIGURES


| FIGURE | | PAGE |
|---|---|---|
| 1 | Self-Efficacy at Three Developmental Stages ..... | 100 |
| 2 | Nontraditional Interests at Three Developmental Stages ..... | 113 |
| 3 | Work Values - Level of Aspiration at Three Developmental Stages ..... | 121 |
| 4 | Work Values - Level of Commitment at Three Developmental Stages ..... | 124 |
| 5 | Work Values - Level of Risk Taking at Three Developmental Stages ..... | 127 |
| 6 | Family Factors: Mother's Interest at Three Developmental Stages ..... | 137 |
| 7 | Family Factors: Fathers' Interest at Three Developmental Stages ..... | 138 |
| 8 | Fathers' Education: Percentage of Highest Level Completed ..... | 140 |
| 9 | Mothers' Education: Percentage of Highest Level Completed ..... | 141 |
| 10 | Perceived Career Success of Parents ..... | 145 |
| 11 | Educational Background of Subjects: Math/Science Proficiency ..... | 151 |
| 12 | Subjects' Education: Percentage of Highest Level Completed ..... | 152 |
| 13 | Career decision Points: Nontraditional Choices ..... | 160 |
| 14 | Significant Others in Childhood ..... | 167 |
| 15 | Significant Others in Adolescence ..... | 168 |
| 16 | Significant Others in Adulthood ..... | 169 |

| FIGURE | | PAGE |
|---|---|---|
| 17 | Masculine Influences at Three Developmental Levels ..... | 178 |
| 18 | Significant Others: Role Models vs Advisors ..... | 179 |
| 19 | Nontraditional Work Experience at Three Developmental Stages ..... | 188 |

# CHAPTER 1

# INTRODUCTION TO THE STUDY

## Statement of Purpose

The purpose of this study was to investigate some of the factors related to the nontraditional career choices of women employed in several sectors of the Newfoundland work force. Information was obtained pertaining to these factors, at the three developmental levels of childhood, adolescence, and adulthood, for each of the occupational groups surveyed. The analysis explored the relationship between these factors and nontraditional career choice. Internal personal factors and external environmental factors were investigated. The internal factors were self-efficacy, interests and work values. The external factors were family background, educational background, significant others, and work experience.

## Significance of Study

It is a well known fact that women are participating in or returning to work in ever increasing numbers, particularly in the past two decades. The Dodge Report (1985) stated that in Canada, women's participation in the labour force increased from 14.3% in 1958 to 23.3% in 1968 and 34.9% in 1981. The recent report of the Royal Commission on Employment and Unemployment (1986) reported reported that in Newfoundland, women's participation in

the work force has increased from 31% in 1975 to 41% in 1985, a 10 percent increase in just 10 years.

Many reasons have been recognized as contributing to this phenomenon. Hansen (1974) provides the following very inclusive list of these factors:

(1) Technology - labour saving devices and the decline of housework and motherhood as full time occupations.

(2) Birth Control - with the powerful effects on norms and decisions regarding number of children.

(3) Legislation and federal regulations providing a legal context for improving the status of women in education and work.

(4) The Women's Movement which has highlighted issues and concerns about the legal rights of women.

(5) The movement towards a more androgynous society in which work and family roles are shared.

(6) Increasing numbers of part time jobs and day care centres - making it more possible to follow a dual career pattern.

(7) Continuing education giving women opportunities to update or retrain for new fields.

(8) The breakdown of occupational and career stereotypes giving women a broader range of career options.

Although these statements provide an explanation of the societal environmental factors which enabled women to

join the work force, they do not address the personal and practical needs of women which precipitated their return to work in such great numbers.

Studies reveal that the majority of women return to work because of economic necessity (Zunker, 1984; Anger, McGrath and Pottle, 1986). Approximately 66% of women in the work force as of March 1982 were single, divorced, widowed or had husbands who earned less than $15,000.00. About one out of six families was maintained by a woman and women represented 63% of all persons below the poverty line in 1981 (Sub Committee Report on Women's Issues in Education, 1983). That report also found that in the Atlantic Provinces, including Newfoundland, one family in five or 17% would fall below the poverty line without the additional female income.

Women are also participating increasingly in the work force for reasons of personal satisfaction. Related to these reasons are the need for independence, the need for status and prestige, the need to use one's skills and talents, and the need for self actualization, all of which can be summarized as the need to reach one's full potential as a human being (Betz, 1977; Stringer and Duncan, 1985).

Although women are becoming an ever increasing proportion of the work force they continue to choose from

among a small number of low paying, low status occupations, many of which suffer from an oversupply of workers, such as the oversupply of women trained in office skills in Newfoundland (Anger et al, 1986).

Technology continues to make inroads into other traditional female sectors such as the lower echelons in clerical, business and sales occupations (Wall, 1986; Avebury Research, 1985).

Major changes are taking place in the needs and composition of the labour force as a whole. Many of the new jobs appearing in the labour market will be in a highly skilled blue collar occupation, notably in the field of high technology. The Dodge Report (1985) emphasized that the growth in the labour force in coming years will largely come from the increased participation of women.

The Report of the Royal Commission on Employment and Unemployment (1986) noted that although women in Newfoundland make up a much greater proportion of the labour force than at any previous time in our history, their average earnings are only about half those of men. Many are restricted in their employment opportunities and they receive lower wages than men for doing similar work. It notes income disparities within occupational categories as well as other forms of employment

discriminations such as women clustered in four areas of traditional employment. This is consistent with the figures from Statistics Canada (1985), which showed the majority of women occupying positions in the service industries, the lower levels of teaching, business, and retail sales.

The segregation of the labour market has been seen as the reason for the low value placed on women's work and the resultant disparity in wages and opportunities. The choice of a nontraditional job almost always means higher salary and higher status than traditional jobs with similar amounts of training (Haring and Beyard-Tyler 1984). Anger et al (1986) declared a need to reduce this segregation of occupations and the resultant wage disparities on grounds of equity alone and Moran (1986), stated quite forcefully that women have the right to participate at all levels of the labour market.

From the evidence of these and other studies it becomes evident that if women are to improve their positions in the work force in regard to higher salaries, greater variety of job opportunities, better employee benefits and increased use of their sills and talents, they must look for careers outside of the limited areas traditionally prescribed for women and consider the wider options provided in more nontraditional fields of

employment.

Although governments have implemented a number of initiatives to bring about equality in educational and employment opportunities for women, they continue to be under represented in many nontraditional areas of employment (Canadian Advisory Council on the Status of Women - CACSW, 1989). Some studies report no improvement in the number of women employed in nontraditional fields and in every province, the number in training for jobs in trades and technology has declined (Women's Policy Office, Newfoundland 1987).

In order to provide opportunities that women will choose to pursue, and training programs that will be effective in promoting greater nontraditional participation of women, a greater understanding of their processes of career development and decision making is required.

This study addressed the question of the career development of women who later pursued nontraditional occupations. It examined factors related to those choices, in order to provide a basis for recommendations for programming, at three stages of the development of career awareness and career decision making.

## Rationale

The process of nontraditional career development of

women begins in childhood and is influenced by factors such as the attitudes, interests, values, parenting style and other characteristics of the family.

As the child attains adolescence, the influences on her socialization become more centered around the school, her teachers, peers, and counsellors, and expand to include other people in the community.

As a young adult she is further influenced in her career development by the opportunities for education and employment which are available to her and which she considers to be congruent with her interests and abilities. She is also influenced by the support or opposition of the significant others in her life, to the career decisions she will make.

The influence of all of these factors over the span of three important developmental stages results finally in a woman's perceptions; of herself as a person; of the society in which she will become a worker; and, of the options that are available to her in fulfilling that role.

## Theoretical Framework

This rationale draws support for its assumptions from four major theories of career development which are: the Self Concept Theory of Donald Super (1956); the Social Learning Theories of Krumboltz, Mitchell, and

Geleatt (1975); the Personality Theory of John Holland (1973); and the Circumscription and Compromise Theory of Gottfredson (1981).

Self concept theory

The three central precepts of the developmental self concept theory of Super are summarized as follows:

(1) Individuals develop more clearly defined self concepts as they grow older.

(2) People develop images of the occupational world which they compare with their self images in trying to make career decisions.

(3) The adequacy of the eventual career decision is based on the similarity between an individual's self concept and the vocational concept he eventually chooses. (Osipow, 1983, p. 153)

Super's view of self concept is presented as follows:

> The process of vocational development is essentially that of developing and implementing a self concept; it is a compromise process in which the self concept is a product of the interaction of inherited aptitudes, neural and endocrine makeup, opportunity to play various roles, and evaluation of the extent to which the results of role playing meet with approval of superiors and fellows. (Herr and Cramer, 1984, p.12).

Super also proposes the notion that people strive to implement their self concepts by choosing to enter the occupation most likely to permit them self expression (Vetter 1973). He also holds, that each person strives to maintain a favorable self concept and is attracted to

those activities which will permit her to improve the self concept she would like to have. While the self concept becomes more stable as one matures, according to Super, he also admits that the situations in which people live and work change with time and experience, making the development of self concept, as well as career development, a life long process.

The self concept theory of Super provided a basis for the developmental nature of this study as well as for the inclusion of those factors both internal and external which influence a person's self concept and hence their vocational choices.

Social learning theory

Krumboltz et al (1975) described, in their theory of career selection, the following four categories as influences in determining career selection:

(1) Genetic endowment and special abilities;

(2) Environmental conditions and events;

(3) Learning the experience;

(4) Task approach skills.

The Social Learning model recognizes the effect of some determinants of career choice such as the effects of heredity and some environmental conditions as being beyond the control of the individual and outside the scope of any planned intervention. It emphasizes,

however, the importance of two kinds of learning experiences, instrumental and associative learning, and their effects on occupational selection. Other influences on career choice outcomes are task approach skills, such as problem solving and decision making skills, which are cognitive processes that both influence outcomes and are outcomes themselves.

These four types of influences as stated in Herr and Cramer (1984), are identified by Social Learning Theory as determinants of career selection that lead to the following outcomes in the career selection process:

(1) Self observation generalizations evaluating one's own performance in relation to learned standards;

(2) Task approach skills - such as value clarifying, goal settling, information seeking etc. related to career decision making;

(3) Actions - entry behaviours that indicate overt steps in career progression such as applying for a specific job or training opportunities.

The importance of Social Learning Theory for the purposes of this study lies in its emphasis on environmental factors and social influence on the individual's occupational choice.

Personality theory

The theory of John Holland is based on the

assumption that individuals will choose occupations consistent with their personality types. Holland's theory, as explained in Holland (1973), states that career choice is an expression of personality in the world of work followed by subsequent identification with specific occupational stereotypes congruent with that personality type. Personality then, in this process is a major determinant of career choice. Holland stresses the accuracy of self knowledge, as well as occupational information, as necessary for career decision making. Equipped with these two areas of knowledge, a person can be typed as one of Holland's six personality orientations. A key concept of Holland's theory is that individuals are attracted to a particular occupation which is most congruent with their personality orientation. A career chosen by this process would be most likely to meet their personal needs and provide them with optimum career satisfaction.

Early studies found that Holland's theory did not appear to be applicable to women (Rose and Elton, 1971). However, subsequent studies have provided considerable support for the adoption of this theory to the career decisions of women (Harvey and Whinfield 1973); (Horton and Walsh, 1967); (Matthews and Walsh, 1978). This theory provided the basis for the use of personal

competencies and interests as factors in the choice of nontraditional careers in this study.

Circumscription and compromise theory

The Circumscription and Compromise Theory of Linda Gottfredson (1981) states that a person's occupational aspirations are the direct consequences of perceptions of herself (self concept) and of the world of work. The person seeks to match significant personal characteristics with the attributes of various occupations that are seen as being both acceptable in terms of (a) sex types, (b) social status and (c) psychological characteristics and which are available in terms of occupational alternatives (Pryor, 1985).

Thus, individuals will progressively restrict or circumscribe the acceptable occupational alternatives in terms of these three aforementioned attributes. When no jobs are perceived as accessible within the range of acceptable alternatives, the person is forced to compromise. The first attributes to be discarded are psychological characteristics, for example, interests. If this compromise does not produce acceptable job alternatives, prestige and status are then forsaken. The last attribute to be relinquished is sex-type. According to Gottfredson (1981) it is a rare occurrence for a person to give up his or her sex-type perceptions to

obtain a job. This fact is attributed to the pervasiveness of sex role stereotyping or sex role appropriateness of occupations in our society and the difficulties it places in the path of nontraditional career choices.

This study will consider both the type of interests which appealed to nontraditional women as well as the type of socialization to which they were exposed in their families, schools, communities and work place.

The concepts presented by the major theorists, Super, Holland, Krumboltz and Gottfredson provide the basis for the selection of the major factors in the career development of women who have chosen a nontraditional career.

Factors Related to Nontraditional Career Choice

The short overview presented above, of the theorists who provided the basis for this study, indicates that the factors which influence career decision making are many and varied. These factors encompass every aspect of the development of a person's life as it progresses from childhood, through adolescence to adulthood. The factors to be investigated in this study were divided into two categories:

(1) Internal factors related to the self concept of the individual.

(2) External factors related to the socialization of the individual.

These categories in fact are interrelated as the internal factors have their origin and development in the external factors.

Internal factors

The internal factors which have been investigated by this study are: self-efficacy, interests, and work values:

Self-efficacy expectations are a person's beliefs concerning his/her ability to perform successfully a given task or behaviour (Bandura, 1977). The continuing underrepresentation of females in male dominated occupations is attributed by many researchers as being partially due to the low self-efficacy expectations of women regarding the behaviour required in the pursuit of these occupations (Betz and Hackett, 1981; Hackett and Betz 1981; Lent, Brown and Larkin, 1986; Neville and Schlecker, 1988).

Interests - Interest as an important factor in career decision making, has been identified by many theorists as well as researchers. It has been stated that if people were interested in a certain type of activity, they would be motivated to take part in that activity. It has been further rationalized that persons

having similar interest patterns to those found in an occupational group, would find satisfaction in that particular group. Childhood antecedents in terms of sex-typed interests and adult role choice have also been discovered (Zunker 1981; O'Donnell and Anderson, 1978; Standley and Soule, 1978; Metzler-Brennan, Lewis and Gerard, 1985; Cherry, 1985; Women's Policy Office, Newfoundland 1987; Avebury Research, 1985; Walshok, 1981).

Work values - Studies show that the work values of women who choose nontraditional occupations differ predictably from women who choose traditional occupations. Some of the masculine typed work values which are seen as necessary for women to hold who compete in male dominated occupations are high levels of aspiration, commitment to work and willingness to take risk (Austin and Myint, 1971; Tangri, 1972; Almquist, 1974; Lemkau, 1979; Hoffman and Hoffman, 1987; Beutell and Brenner, 1987; Herr and Cramer 1984; Cherry, 1985; Shapiro and Crowley, 1982).

External factors

Some of the external factors related to the socialization of women in nontraditional careers are family background, educational background, significant others and previous work experience.

The family background - factors investigated in this study were level of education of both parents, the family socio-economic status, the main occupation of both parents, and the parents' functions as role models, facilitators and encouragers. These factors are seen by many studies to be the source of a strong self concept and of the socialization needed to eradicate sex-role stereotypes from career decision making and to provide the support and encouragement required by women who opt for nontraditional careers (Osipow, 1983; Hennig, 1970; Standley and Soule, 1974; Auster and Auster, 1981; Tangri 1972; Keith, 1981; O'Donnell and Anderson, 1978; Splete and George 1985; Lemkau, 1983; Lunneborg, 1982; Skolomskas and Axelrod, 1988; Fitzgerald and Betz, 1985).

The educational background of the individuals investigated by this study consisted of: their level of education, the subjects in which they were most proficient, the type of school attended, i.e., single sex or co-ed schools, and the availability and influence of career counselling.

In early studies a high level of education was positively associated with nontraditional career choice, however, more recent studies emphasize the importance of math and science in nontraditional career choice (Fitzgerald and Betz, 1983; Tangri, 1972; Austin and

Myint, 1971; Haring and Beyard-Tyler, 1984; Angrist and Almquist, 1984; Tobias, 1978; Ethington, 1987; Ethington and Wolfe, 1988; Vollmer 1983; Berryman, 1985; Fox and Cohn, 1980; Hollinger, 1985; Moran, 1986; Jagacinski, 1987; Committee on Young Womens Issues, 1986; Women's Policy Office Nfld., 1987; Cherry, 1985).

The negative effects of single sex schools, counsellor bias and lack of guidance services are also educational barriers to nontraditional career decision making (Bauer, Laetrille and Witwicki, 1985; Fitzgerald and Crites, 1980; Thomas, 1971; Bingham and Hauser, 1973; Haring and Beyard-Tyler, 1984; Baker, 1985; CACSW, 1985; Committee on Young Women's Issues, 1986; Women's Policy Office, 1985; CACSW, 1989; Galassi, Jones and Britt, 1985; Auster and Auster, 1981).

Significant others are those important persons apart from parents who have shown an interest in one's life and activities. They are shown by many studies to provide the encouragement and support that facilitates nontraditional career choice whereas the lack of such support is a major barrier to nontraditional career development. Significant others may serve as role models or facilitators and they may provide male or female influence (Stake and Levitz, 1979; Tangri, 1973; Almquist, 1974; O'Donnell and Anderson, 1978; Douvan,

1976; Herr and Cramer, 1979; Lunneborg, 1982; Auster and Auster, 1981; Lemkau, 1983; Stringer and Duncan, 1985; Haring-Hidore, 1987; Lefebre, 1989).

Previous work experience is an important factor in nontraditional career choice as: a basis for reality testing, in helping to formulate specific career goals, in fostering work values and vocational interests, and in other areas of career selection and implementation (Super, 1985; Almquist, 1974; O'Donnell and Anderson, 1978; Walshok, 1981; Stringer and Duncan, 1985; Cherry 1985).

The foregoing factors which are supported by the literature are some of the most important factors which influence female nontraditional career choice. A study of how these factors influence the career decisions of women in a broad range of nontraditional occupations, may provide information which will help motivate other young women to consider similar nontraditional career options.

## Research Questions

The following research questions are based on some of the factors related to nontraditional career choice as identified in the literature and based on the theories of Super, Holland, Krumboltz and Gottfredson which explain the association of these factors to career decision making.

Internal factors

1) What, if any, are the similarities and differences to be found in the development of self-efficacy in the nontraditional occupational groups included in this study?

2) What, if any, are the similarities or differences to be found in the development of interests in the nontraditional occupational groups included in this study?

3) What, if any, are the similarities or differences to be found in the development of the work values of levels of aspiration, commitment, and risk taking, among the nontraditional occupational groups of women included in this study?

External factors

4) What, if any, are the similarities or differences, in the influence of family based factors, at different levels of development, or as background factors on the nontraditional occupational groups included in this study?

5a) What, if any, are the similarities or differences in the development of educational abilities, preferences, and background factors, between the nontraditional groups included in this study?

5b) What, if any, are the similarities or differences,

in the development of the career decision making process among the nontraditional groups included in this study?

6) What, if any, are the similarities or differences in the influence of significant others during the three developmental stages of the nontraditional groups included in this study?

7) What, if any, are the similarities or differences, in the type of work experience encountered at three developmental levels by the nontraditional groups included in this study?

## Definition of Terms

A nontraditional career choice refers to the selection of an occupation for which one's sex is a contradiction because that occupation has been traditionally stereotyped as the proper and exclusive domain of only one sex.

Self-efficacy is the expectation that one can produce certain behaviours and that these behaviours can lead to desired outcomes.

Socialization process is defined as learning to conform. To be an accepted member of a group (i.e. females) one is expected to conform to the expectations and standards of the group. To deviate from conformity is to be ostracized.

Sex role stereotypes refers to those attitudes which

result from sex role socialization by which one perceives certain roles or activities to be exclusively male or female.

Level of aspiration refers to that level of ambition or achievement in career selection and performance that one wishes to attain.

## Limitations

The main limitation of this study is the low rate of return of three of the seven groups surveyed. These are the trades, semi-skilled and resource groups. This fact may indicate a certain degree of bias related to the literacy level of non respondents. That "non respondents tend to have less academic success than respondents" is noted by Borg and Gall, (1983) p. 435. A lower level of education was reported by the respondents of the semi-skilled and resource groups than that of the other groups, as well as a lower level of academic self-efficacy.

The questionnaire was distributed in June which may have affected the return of the trades, semi-skilled and resource workers as these groups also reported a high rate of seasonal employment and summer would have been their busiest time. It is also possible that respondents may have been more sensitive to women's issues than non respondents and some bias may exist in that area.

This study may or may not generalize to all Newfoundland women in nontraditional careers. Although great care was taken to sample every type of nontraditional career in Newfoundland, it is very possible that some occupations are not associated with unions, big business or other sources used to collect the sample and for this reason may have been missed in the process.

# Chapter 2

## REVIEW OF THE LITERATURE

### Theoretical foundation

The theoretical basis for this study is drawn from the work of four major theorists in career development, Super, Krumboltz, Holland, and more recently, Gottfredson. An examination of these theories revealed those factors which impact on the development of the self concept and on the socialization of individuals. These latter influences may then predispose an individual towards or away from making a nontraditional career decision.

Of all the theories pertaining to occupational choice, that of Donald Super is seen to be the most pervasive and comprehensive in which the personal and environmental variables of career development are integrated into a framework of developmental life stages. Super presented his theory in the following series of ten postulates:

(1) People differ in their abilities, interests and personalities.

(2) They are qualified by these characteristics for a number of occupations.

(3) Each of these occupations requires a characteristic pattern of abilities, interests and

personality traits.

(4) Vocational preferences and competencies, the situations in which people live and work, and hence their self concepts, change with time and experience.

(5) There are five main stages in this process: growth, exploration, establishment, maintenance and decline.

(6) The nature of the career pattern, its sequence and level of attainment, is determined by the individual's socio-economic level, mental ability, personal characteristics, and the opportunities to which he is exposed.

(7) Development can be guided by facilitating the process of vocational maturation and by aiding in reality testing and the development of self concept.

(8) The process of vocational development is essentially that of developing and implementing the self concept.

(9) The process of compromise between social factors, self concept and reality is one of role playing, in the many activities each person participates in throughout his life.

(10) Work satisfactions and life satisfactions, depend upon the extent, to which each individual finds adequate outlets for his abilities, interests,

personality traits and values, in a work role which previous experience has shown to be appropriate. (Herr and Cramer, 1984, p.123). As noted in postulate (4), the self concept is continually changing as a result of changes in the situations in which people live and work. Thus, as workers increase their skills and competencies, or are exposed to a broader range of career options, they may be drawn towards more rewarding and more responsible positions (Super, 1956). An examination of the work history of women at three stages of their development may explain, in particular those nontraditional career decisions that were made at the adult or establishment stage of career development. Super belatedly acknowledges the influence of a variety of external factors as career determinants in the following summary:

> The decision points of a life career reflect encounters with a variety of personal and situational determinants. The former consist of the genetic constitution of the individual, modified by his experiences in the home and the community. The latter are the geographic, historic, social and economic conditions, in which the individual functions from infancy, through adulthood and old age. these determinants affect preferences, choices, entry into the labour force, and assumptions of the worker's role and role changes. (Super, 1980. p.223).

The underlying theme throughout Super's theory is that the individuals choose occupations that will allow them to function in a role consistent with their self

concept, and that the self concept is the sum total of his developmental history.

The personality theory of Holland agrees with the first three postulates of Super's theory and states that a person expresses personality through the choice of a vocation. Holland's theory is summarized in the following four assumptions:

(1) In our culture, most persons can be categorized as one of six types: realistic, investigative, artistic, social, enterprising or conventional.

(2) There are six kinds of environments: realistic, investigative, artistic, social, enterprising or conventional.

(3) People search for environments that will let them exercise their skills and abilities, express their attitudes and values and take on agreeable problems and roles.

(4) A person's behaviour is determined by an interaction between his personality and the characteristics of his environment. (Holland, 1973, pp.2-4)

Holland's theory contends therefore that individual behaviour is a function of the interaction between one's personality and environment and that decision making or choice behaviours are an expression of personality.

Persons who inhabit similar occupational or educational environments tend to have similar personality characteristics; therefore, their responses to problems and situations are likely to be similar. For these reasons, personality inventories are, in fact, interest inventories (Holland, 1973). The importance of interests as descriptors of personality, which is the basis of career choice, according to Holland, provides further basis in theory for the importance attached to interests as a factor in this study.

Although earlier studies such as those by Rose and Elton (1971) concluded that Holland's theory in its present form was not applicable to women; later studies have provided ever increasing support for the validity of Holland's theory for women. Harvey and Whinfield (1973) found that Holland's, Intellectual, Conventional and Enterprising types were valid descriptors of women's personality characteristics and vocational interests. Horton and Walsh (1976) found that Hollands measurement instruments, the Self Directed Search and the Vocational Reference Inventory, tended to discriminate effectively among the six occupational groups of women consistent with Holland's theory, thus lending some support to the concurrent validity of this theory for employed women with college degrees. Matthew and Walsh (1978) found

similar results for Holland's theory as it applied to working women who did not have college degrees. Thus, the application of Holland's theory that interests are an important factor in women's career decision making is somewhat validated by these studies.

Although Super's self concept theory and Holland's personality theory explain the role of personal influence in vocational choice, they pay little attention to the sociological variables which may influence career choice and over which the individual has little or no control (Psathas, 1968).

The Social Learning Theory of Krumboltz et al (1975) endeavors to simplify the process of career selection and is primarily based on life events which are influential in this process. The Social Learning model also emphasizes the importance of learning experiences, their effect on occupational selection and the ways in which different types of learning experiences occur.

This process of career development involves the following four factors:

(1) Genetic endowments and special abilities, that is certain inherited qualities which may set limits on the individual's career opportunities, and should be recognized as influences in the career decision making process.

(2) Environmental conditions and events are often beyond the control of the individual and might include such things as government policy, natural disasters and economic conditions.

(3) Learning experiences. All previous learning experiences influence the individual's education and decision making. Krumboltz identifies two types of learning experiences: Instrumental learning experience occurs when the individual acts on the environment to produce certain consequences. Associative learning experiences are situations where the individual learns by reacting to external stimuli by observing models or by pairing two events in time and location.

(4) Task approach skills are learned skills which the individual applies to each new task or problem. Some examples of task approach skills are problem solving skills, values and work habits. The application of these skills affects the outcome of each task or problem and in turn is modified by the results. (Zunker, 1981, p.24).

Krumboltz sees the individual as constantly encountering learning experiences, followed by rewards and punishments which produce in turn three types of consequences which are: self observation generalizations similar to self concept, task approach skills, and actions. Actions are implementations of behaviour such

as applying for a job or changing a field of study.

Thus, the social learning model emphasizes the importance of learning experiences and their effect on occupational selection. This theory suggests that many environmental circumstances may influence occupational selection and many of these are often beyond the control of the individual (Herr and Cramer, 1984). This theory has important implications for career counselling and for the planning of intervention programs based on the different ways in which people are influenced by their learning experiences.

Super also acknowledges the existence of restricting factors in terms of personal limitations or conditions in the environment against which the individual is powerless. He says that these factors may interfere with the attainment of the ideal self concept and force the individual to accept somewhat less than the ideal he has striven towards (Herr and Cramer, 1984).

Gottfredson (1981) enlarges on this concept of compromise in her developmental theory of occupational aspirations, in which she seeks to integrate both psychological and social systems of career development. Gottfredson views occupational preferences as developing in terms of self concept in a series of four stages. Briefly these are:

(1) Orientation to size and power, in which the child comes to understand the concept of being an adult.

(2) Orientation to self roles which incorporates gender self concept.

(3) Orientation to social valuation, an appreciation of the abstractions of social class.

(4) Orientation to the internal unique self, an appreciation of one's own unique aptitudes, interests and values. (Gottfredson, 1981, pp. 548-549)

This theory also accepts the fundamental importance of self concept in vocational development, that people seek jobs compatible with their image of themselves, in accordance with the theories of Super and Holland. The self concept, according to Gottfredson, includes the totality of different ways of seeing oneself, some more important and central to one's sense of self and some less so. The major vocationally relevant roles as categorized by Gottfredson are gender, social class background and psychological factors such as: intelligence, vocational interests, competencies and values.

Three general principles underscore this theory:

(1) Some aspects of self concept are more central than others and will take priority when compromising occupational goals.

(2) Exploration of job options ends with the implementation of a satisfactory choice, not necessarily the most optimal potential choice.

(3) People accommodate psychologically to the compromise they make. (Gottfredson, 1981, pp. 572-574)

In the process of compromise, the first attributes to be relinquished in the search for an acceptable job are the psychological characteristics. The attributes of status and prestige associated with social class will be given up next. The last compromise to be made, according to Gottfredson, is the sex-type attribute which, because of the way people are socialized in our culture, is the most deeply ingrained. It is noted in Fitzgerald and Betz (1983) that the implementation of this theory would require that instead of focusing on career interests as a prime determinant of career choice, the focus must first be on the sex role socialization process as it limits the vocational choices considered by young people. Pryor (1985) noted that in times of high unemployment and in places of limited occupational opportunities the need for compromise will be greater in order for individuals to find employment. The compromise theory of Gottfredson would seem to be tailor made to fit the economic and employment realities which presently exist in Newfoundland and Labrador as well as the high level of

sex-role stereotyping which resulted from the socialization of women in this province.

Socialization and sex-role stereotyping

A nationwide study aimed at encouraging more women to engage in nontraditional jobs has found that women are interested in nontraditional occupations from a very early age (Avebury Research, 1985). However, it has also been found that the sex-role socialization of girls produces a response set which restricts their consideration of nontraditional occupations and inhibits the development of women to their full potential (O'Donnell and Anderson, 1978). This response set as stated by Gottfredson (1981) is sex-role stereotyping, a deeply held idea that certain occupations are suitable for persons of one sex or another. A study by Swatko (1981) found evidence that women with less traditional sex-role perceptions are more willing to consider occupations which have previously been male dominated.

A study on the career expectations and aspirations of Canadian school children confirms the pervasiveness of sex-role stereotyping in our society and its negative impact on the range of women's perceived career choices particularly in the area of nontraditional occupations (Women's Bureau of Labour, 1986).

Sex-role stereotyping begins at a very early age as

discovered by Auster and Auster (1981) in a study which observed the recognition of sex-typed occupations in very young children. It was also noted by Fitzgerald and Betz (1983) that young children learn sex-role stereotypes through the influence of parents, teachers, the media and other elements of our society with which they have frequent contact. It is claimed that the education system plays a large role in sex-role stereotyping by such things as different treatment and expectations of boys and girls, sex-typed curriculum materials, role modelling of teachers, and the influence of counsellors and other (The Royal Commission on Employment and Unemployment 1986). It was suggested by Anger et al (1986) that removing the barriers to women's education and employment must begin at the grade school level where formal stereotyping begins.

The socialization of women in Newfoundland and Labrador may have produced an even greater degree of sex-role stereotyping than elsewhere, due to a variety of cultural, historic, social and economic factors.

The rigid sexual division of labour which is prevalent in Newfoundland results from the demands of a resource based economy, in industries such as logging, mining and, in particular, the fishery. According to Faris (1972) in his study of a small fishing community,

which was representative of many other such communities, he stated that these industries demand male-typed characteristics of physical strength, endurance and courage. Faris (1972) also noted that fishing has imbued in the people a sharp division of labour along sexual lines, for example, only men are allowed to fish. Porter (1983) found that in Newfoundland, this sexual division of labour persisted in the fish plants, in that only men were supervisors and cutters. Women were relegated to the harder more lowly paid positions. Porter (1983) further noted that fishing is seen as a valuable, exciting men's activity and therefore evaluated as more significant than any women's contribution. In a later study of another Newfoundland community Porter and Pottle (1987) described a labour market characterized by a rigid occupational segregation by sex, in a patriarchal society where women work only at women's jobs, supervised by men. Another study carried out by the Committee on Young Women's Issues, (1986) on a cross section of young women from urban, as well as rural areas, found that in the area of sexual division of labour, the separated roles remained unchanged. Porter (1986) concluded that the division of work along sexual lines is perpetrated in the socialization and training of women. Anger et al (1986) says that there are still deeply held beliefs in

Newfoundland about what does and does not constitute women's work.

Another important factor in the socialization of Newfoundland women, that may have differed from women elsewhere, was the type of schooling to which they were subjected. For over one hundred years the schools of Newfoundland were segregated along denominational lines and in St. John's, Corner Brook, and the larger towns, the students were segregated by sex as well. Up until the 1980's approximately twenty-five percent of Newfoundland women were education in single sex schools as estimated by Dr. K. Tracey, Executive Director, C.E.C. (retired).

A study carried out by the R.C. School Board of St. John's found that for a variety of reasons co-education was more desirable, especially for girls, than single sex schools. This study, based on the literature of the sixties and seventies, found: that co-ed schools resulted in a better socio-emotional climate for students; that co-ed schools allowed for the more modern role and the acceptance of women into society and professional life; that less sex-typing of academic subjects was found in co-ed schools and that girls in this type of school were taking once male dominated subjects of science, math and technical drawing and that boys were taking once female-

dominated subjects; and finally that co-ed schools provided a broader selection of extra curricular activities. A study by Schneider, Coutts and Starr (1988) found that students of co-ed schools had more positive self concepts than students from single sex schools.

Single-sex schools in Newfoundland were almost entirely phased out in the eighties. However, the effects of single sex schools, such as sex-role stereotyping, academic subject sex-typing, poorer social and personality adjustment and a narrower range of activities, remain with approximately 25 percent of the females currently employed in the Newfoundland work force. Also, unfortunately, recent studies have shown that the educational process, as a whole, still reinforces these sex-role stereotypes. Kealey (1986) found evidence of a sex-biased curriculum as well as guidance counsellors and teachers who needed re-education concerning their contribution to sex-role stereotyping. In the classroom different standards of behaviour are tolerated and encouraged for boys and for girls. Erhart (1987) noted that socialization away from male-typed interests by parents, teachers and counsellors may be one reason why more women are not studying for degrees in nontraditional disciplines. Thus, it is apparent that

although single sex schools have gone, the education system may still remain a source of sex-role socialization in this province.

The fact that a large proportion of the Newfoundland population lives in rural areas accounts for other types of barriers to female nontraditional career development (Porter and Pottle, 1987). They also noted that one of the many disadvantages of rural living was the lack of training facilities for young women who cannot or will not leave and for older women who wish to retrain. Kealey (1986) further noted that rural women lack access to government job creation programs because of notions of what constitutes "men's work" and "women's work".

This review of conditions in Newfoundland regarding the socialization of women indicates the extent of the problem of sex role stereotyping as it exists in this province and the difficulties it creates for women who are considering a nontraditional career choice.

This historical and deeply rooted tradition of separate roles for men and women still exists in the outports today and is largely responsible for the slow acceptance of nontraditional employment for women in Newfoundland and Labrador.

Factors involved in nontraditional career choice

The literature identifies two types of factors which

influence nontraditional career choice, namely, the internal factors which form important aspects of the self concept, and the external factors related to the socialization of the individual. The theoretical basis demonstrates how self concept and the socialization process ultimately produce the person who has the internal characteristics and the external support systems necessary for making a successful nontraditional career decision.

The internal factors examined by this study were, self-efficacy, interests and work values. The external factors examined were, family background, educational background, significant others and previous work experience.

Self-efficacy expectations are defined by Bandura (1977) as a person's beliefs concerning his or her ability to perform successfully a given task or behaviour. There are four sources of information by which self-efficacy expectations are acquired or altered. According to Bandura (1977) these are: (1) Performance accomplishments which are opportunities for a variety of successful behaviours which are more limited for females than for males, resulting in lower self-efficacy, (2) Vicarious experience which is learning from the example of others. Low self-efficacy from this source results

from the small number of females as role models in many nontraditional occupations, (3) Verbal persuasion which refers to the support and encouragement of others towards a nontraditional career choice, (4) Emotional arousal which has significance for nontraditional careers in terms of the anxiety often felt by females concerning their ability to perform male-typed competencies and skills, associated with nontraditional careers.

One example of this anxiety was found by DiSabatino (1976) who saw fear of failure as one reason why women do not choose nontraditional careers. Ayres-Gerhart (1981) noted that females self-efficacy expectations with regard to their performance in math and science was significantly lower than those of males. Betz and Hackett (1981) found that self-efficacy expectations were positively related to the range of career options. Hackett and Betz (1981) saw the sex-role socialization as less likely to develop strong career related self-efficacy expectations in females than in males and they attributed the continuing underrepresentation of females in male dominated occupations as being partially due to low self-efficacy regarding the behaviours required in the pursuit of these occupations.

It was also found by Haring and Beyard-Tyler (1984) that many traditionally male jobs require masculine-typed

competencies such as math and science abilities, independent thinking, and decision making skills. They concluded that as a result of their sex-role socialization women generally have low expectations that they can perform the tasks and behaviours required by nontraditional occupations. Hackett and Betz (1981) also noted that the external barriers to women's career development represented many obstacles which required strong self-efficacy beliefs to be surmounted. Lent et al (1986) extended the work of Betz and Hackett (1981) in exploring the relationship between self-efficacy beliefs and educational/vocational performance regarding career options in science and engineering. They found that self-efficacy does contribute significantly to the prediction of technical grades, persistence and range of career options.

Another recent study by Neville and Schlecker (1988) found that strong self-efficacy expectations were related to a willingness to engage in nontraditional occupations but not traditional jobs. A major finding of a study by Avebury Research (1985) found that perceived capability to do a nontraditional job enhances its attractiveness for women. They also found that students in math/science and technology fields, based their career decisions on perceived personal abilities or on earlier success in

related academic studies. Bandura, Adams and Meyer (1977) recommended that with understanding the concept of self-efficacy, the sources from which it is derived, and its potential effect on vocational behaviour, intervention procedures can be devised to increase individual levels of self-efficacy. It is further suggested by Herr and Cramer (1984) that these procedures can be carried out at the earliest age possible as intervention becomes increasingly difficult as stereotypes become more ingrained.

Interests - Super (1957) identified interest as a possible source of motivation, stating that if a person were interested in a certain type of activity, he would be motivated to take part in it. Zunker (1981) rationalized that persons having similar interest patterns to those in an occupational group would more than likely find vocational satisfaction in that group, therefore, it is possible that women with nontraditional interests would find vocational satisfaction in nontraditional occupations.

Standley and Soule (1974) in a study of women in male-dominated professions, found that the majority of these women enjoyed masculine-typed activities as children whereas the minority of them enjoyed feminine-typed activities in childhood. Metzler-Brennan et al,

(1985) in a study of adult career role choices also found an association between childhood antecedents to the adult characteristics of masculinity and femininity and adult role choices.

It was noted by O'Donnell and Anderson (1978) that the majority of subjects, in both traditional and nontraditional fields of study, identified interest as the primary reason for choosing a particular field of study. A recent study on women in trades and technology found that women working and training in nontraditional areas are pursuing what interests them and that they enjoy what they do (Cherry, 1985). Similar findings were reported in a parallel study of Newfoundland women in technical training. It was found that the factor, indicated by the majority of respondents, that motivated women to chose a nontraditional field was that they had a strong interest in those kinds of work and activities (Women's Policy Office, 1987). Walshok (1981) however, in her landmark study of blue collar women contended, that for the women in her study, specific interests grew out of their employment experiences, whereas for middle class professional women, their interests led to their career selection. However, she also reported that access to nontraditional occupational knowledge and skills was provided by father and other adult males who also

encouraged the development of nontraditional interests and preferences in these blue collar women. This would seem to indicate that the workplace may have served to specify interests that already existed towards the nontraditional occupations. In conclusion, it was noted by Fitzgerald and Betz (1983) that women who developed nontraditional, scientific and technical interests often utilized them in the pursuit of nontraditional careers. However, the failure of women to develop interests beyond the limits of traditional female socialization continues to be a major barrier to their career development and seriously limits their career options.

Work values - The importance of work values in career selection was pointed out by Super (1957) when he stated that values, which are primarily transmitted by the family and later modified by the peer group, play a part not only in determining the field in which a person will decide to work but also how hard he or she will be prepared to work in that field.

It was found by Almquist (1974) that women who choose occupations which mainly employ men, differ predictably in work values, from women who select feminine occupations. Almquist also identified a strong commitment to a career as a work value which distinguishes most clearly between these groups. Tangri

(1972) made a similar observation that innovative women have a greater commitment to careers than traditional women. A higher level of aspiration was found by Austin and Myint (1971) in girls who were more oriented towards male dominated fields, than in girls who were oriented towards traditional female occupations. The values of nontraditional women were further described by Lemkau (1979) as having high levels of commitment to education, hard work, and achievement. O'Donnell and Anderson (1978) found nontraditional women very committed to life long careers and having a very high level of aspiration in expecting to assume managerial, administrative or professional career responsibilities.

Abi-Karam and Love (1984), in a study of 23 nontraditional career women, found a need for high levels of aspiration and risk, similar to the findings of Basset (1985) in her report on Canadian career women. Basset found that among factors cited by women as restricting their progress in the work force, lack of ambition, fear of taking risks, and lack of commitment were among those ranking highest on the list. Conversely, Miles (1983) found narrow aspirations to be the reason so few girls train for nontraditional highly skilled jobs and Cherry (1985) found that women who were succeeding at nontraditional jobs, often do so at enormous personal and

financial risk.

Hayes (1987) specified risk taking ability as a work value predominating in female entrepreneurs and she describes risk taking as a willingness to bet on themselves and their own abilities. Hoffman and Hoffman (1987) found that in men and women competing for the same jobs, women were much less likely than men to accept a higher level occupation in terms of salary, responsibility and commitment. Beutell and Brenner (1987) hypothesized that men and women with the same career orientation, one seen as nontraditional for women, would not differ significantly in their work value preferences. No support was found for this hypothesis. Strong evidence of sex differences in work values was found, with level of aspiration and risk taking behaviours much higher in men than in women. The fact that the sample was undergraduate business students, not those actually in the work force, may have made a difference in the results. However, Fitzgerald and Crites (1980) noted that women's career aspirations and choices are far lower than the aspirations of males with comparable levels of ability for which Herr and Cramer (1984) offers the following observations on the values of high aspiration and risk. Level of aspiration appears to contribute to vocational choice. Men more often achieve

congruence between their levels of aspiration and levels of employment. A high risk person's openness to new experiences and that person's rejection of tradition, may indicate self confidence in dealing with life's contingencies.

It would seem then from the findings of these studies that a high level of the work values of aspiration, commitment and risk taking are necessary if women are going to compete successfully in male dominated fields.

Family factors - Super (1957) indicated that the influence of the family on an individual's career selection begins in childhood when the foundation is laid for self concept in terms of personality traits, sex role models and sex role socialization. It continues in adolescence which is more concerned with the acquisition of interests and values. In young adulthood, the stage for work entry is influenced by the family's resources and contacts as well as parental perceptions of success and work satisfaction. Super also notes that the nature of career pattern is determined in part by the individuals parental socio-economic level. Recent studies illustrate the importance of many different family influences on female career development and, in particular, on the selection of nontraditional careers.

Some of these influences are (1) family socio-economic status (SES), (2) the educational levels of both parents, (3) the mother's employment, (4) the perceived success of the parents, (5) the interest and support of the parents.

A high socio-economic family background was found by many studies to relate positively to nontraditional career choice as in Hennig (1977), Standley and Soule (1978) and Shapiro and Crowley (1982). Standley and Soule (1978) in a study of women in four high status male dominated professions found that most of the parents were well educated, employed in high status occupations and earned above average incomes. Shapiro and Crowley (1982) found that individuals having a high family socio-economic background and having highly educated parents expected to attain significantly more education and aspired to higher status occupations, than those who did not have these advantages. Splete and George (1985) also found family background and socio-economic status important influences on female career decision making and development. Recently Ethington (1987) found that women's entry into male dominated non-science careers is enhanced by coming from more affluent families. These families have the resources to provide a wide variety of activities and opportunities during their daughters formative years, as well as the financial resources for

any type of training to which they might aspire. Baker (1985) found that girls from higher socio-economic backgrounds chose more demanding university courses and were more likely than girls from lower socio-economic backgrounds to aspire to a nontraditional professional job. However, she also found that no girls from lower socio-economic families suggested skilled labour or technical positions, which some of their parents performed, as work that they could picture themselves doing in the future. Thus, sex role stereotyping may be greater among lower socio-economic groups and towards nontraditional jobs which do not have the status and prestige of the professions.

High levels of education of both parents have also been found to relate to female nontraditional career choice. The influence of their mother's high level of education on the career choice of nontraditional women was noted by Tangri (1972) whereas the father's high level of education was found by Greenfield, Geriner and Wood (1978) to exert a similar influence. O'Donnell and Anderson (1978) found that fifty percent of the pioneers in their study had mothers who were college graduates and who had worked in the professions. In Fitzgerald and Betz (1983) it was noted that the data on the father's education showed a consistent pattern of more highly

educated fathers having more career-oriented and innovative daughters than less educated fathers. Their mother's high level of education was also found to be positively related to nontraditional career choice.

The research of Fitzgerald and Betz (1983) suggested that working mothers are an important and positive influence on their daughters nontraditional career development. Their daughters develop more liberal sex-role ideologies and were more likely to pursue nontraditional occupations than those with non-working mothers. Baruck (1972) found that girls with working mothers tended to be more career oriented and Lemkau (1983) found that they tended to choose more nontraditional careers. Keith (1981) found that employed mothers presented more diversified role models for their daughters whereas Auster and Auster (1981) held that the lack of a working maternal role model presented a barrier to nontraditional career choice. The mother was seen as an encourager "to do something with their lives" and in that way she influenced her daughter's career choice.

Standley and Soule (1974) found that although both parents were deeply involved in their daughter's achievements, they tended to influence them in different ways. Whereas the influence and confidence of the mother was seen as greater, it was the fathers who were role

models of career success. Auster and Auster (1981) also found that nontraditional women had close relationships with their father. In a profile which was compiled on nontraditional women, Borman and Guido-Dibrito (1986) noted the prevalence of the following background characteristics: (1) The mother worked in a high level nontraditional occupation, (2) The father was an achievement role model and source of occupational identification for his daughter's career orientation; (3) Both parents supported their daughter's career orientation in different ways and with varying degrees of importance at different life stages. Lunneborg (1982) found that the women in her study identified with and had the emotional support of both parents. The mothers had often been occupational role models whereas the fathers had reinforced nontraditional behaviours in their daughters twice as often as the mothers had.

However, Walshok (1983) found in her study that only a few blue collar women reported unequivocal parental support for their careers. Most reported positive parental reaction to their well paid, steady employment but considerable ambivalence about their daughters working in nontraditional jobs.

From these studies it has been found that although agreement is found on such variables as the influence of

the socio-economic and educational levels of the parents, a diversity of opinion remains concerning their roles as encouragers, facilitators and models of career success and satisfaction for their daughters' nontraditional careers.

Educational background

A high level of academic achievement has been noted by many researchers as being a major facilitator of women's nontraditional career development. Tangri (1972) found a high level of educational attainment a strong determinant of women's nontraditional career choice. Fitzgerald and Betz (1983) observed that even though the education system may provide an unsupportive, negative or discriminatory environment for women, their level of educational attainment is strongly related to the type and extent of their vocational participation. Austin and Myint (1971) found that whereas high academic ability in general appears to be associated with career orientation, ability in math and science appears to be an important factor which differentiates women who pursue male-dominated occupations from those who pursue traditional female occupations.

Low parental and teacher expectations seem to prevent females from developing attitudes of competency in math according to Haring and Beyard-Tyler (1984).

This perceived lack of ability both in math and other male-typed competencies, such as science, causes women to avoid these prerequisites for careers in the physical sciences, engineering, business and agriculture, as noted by Angrist and Almquist (1984).

As stated by Tobias (1978) math anxiety results from a culture that makes math ability a masculine attribute. Also, a lack of female role models with competency in math and science and low expectations on the part of parents and teachers discourages females from developing attitudes of competency in these subjects. In the early grades girls' interest in math and science is higher than boys, as they get older these results even out and by high school girls may be steered away from these areas almost completely by parents and teachers and they are thus "filtered out" of many nontraditional college majors as observed by Erhart and Sandler (1987).

The Canadian Advisory Council on the Status of Women (1989) also reported that: a combination of school, parental and societal expectations contributed to the under representation of females in math, science and technology; that the proportion of girls and women in math and science decreases at each level of education; and without high school math and science, 85% of post-secondary programs are closed. Entry into more male-

dominated science and math professions is enhanced by strong high school and college academic performance in these subjects as found by Ethington (1987). Conversely, a lack of academic performance in these subjects may also be one of the reasons why women continue to be under represented in scientific and business careers. Ethington and Wolfe (1988) examined the manner in which several factors influenced women's choice of an undergraduate field. They found that the number of math and science courses taken in high school was the predominant factor in these decisions.

On the positive side, Vollmer (1983) looked at the influence of the schools on women's participation in nontraditional careers and found that doing well academically, and having hands on classroom experiences and participation in special projects, were facilitators for nontraditional careers. Berryman (1985) suggested two strategies for increasing women's representation among quantitative degrees. One strategy was to increase women's share of the initial mathematics/science pool, the other was to reduce attrition from the pool.

Fox and Cohn (1980) felt that sex differences in math achievement in adolescents, failed to account completely for the small number of female adolescents who aspired to careers in math and science. Further to this

opinion, Hollinger (1985) found that it was the combined influence of several career relevant abilities that differentiated nontraditional from traditional career aspirants. No significant difference in perceived math ability was found between the two groups. One suggestion was that nontraditional careers may have been chosen by default, in that those aspirants felt less competent in artistic or social pursuits than in math. It must be noted however that the sample for study was a large group of mathematically talented female adolescents. It did not represent a typical adolescent population. In a study on female apprentices in male-dominated trades, Moran et al (1986) found that females did not face any more problems with mathematics in their training than males.

It has also been noted that despite the fact that educational barriers for women have been removed for years, women continue to be underrepresented in male-dominated fields at the graduate level. Ethington (1987) noted that the environments of the universities themselves were often seen as unsupportive of women's career aspirations. In the field of engineering, Jagacinski (1987) noted that female engineers may not be availing of the same career opportunities as men because they do not pursue advanced degrees.

Several recommendations have been made locally to eradicate the sex-role socialization of females in the schools and to improve the climate for womens participation in all areas of educational endeavors. Anger et al (1986) in their report recommended that people must be made aware of training programs already in place and that there is a need for bridging programs to remedy deficiencies in educational subjects and practical skills. The Committee on Young Women's Issues (1986) recommended that the university should include material on sex-role stereotyping in teacher training programs. It was felt by the Women's Policy Office, Newfoundland (1987) that a curriculum for all students and instructors should be introduced into the training institutions on the topic of women's roles in nontraditional training. However, Cherry (1985) seems to put the responsibility directly on the women concerned by her observations that if women want to succeed badly enough at a nontraditional occupation, they will get the necessary math/science background.

The role of counselling in education

The role of the guidance counsellor is another means by which the educational system exerts an influence on nontraditional career choice. Fitzgerald and Crites (1980) found that many career counsellors of both sexes

held traditional attitudes towards women's roles and stereotypic views of the appropriateness of certain occupations for females. Thomas (1971) noted that female clients with "deviant" career goals were more in need of counselling that those with "conforming" goals. Bingham and Hauser (1973) found that counsellors discouraged nontraditional career aspirations in females. Vetter (1977) observed that decisions about women's education and employment are still based on their sex rather than on their individual interests, abilities and capacities. Patterson (1973) remarked that some counsellors are unaware of their own bias. In a study on fifty business and science college majors, Vollmer (1983) found that they rated interactions with counsellors as their least encouraging experience and they cited a need for improved career advising. Indications were that counsellor bias may be a barrier to nontraditional career choice, in that male counsellors were found to have especially negative views on female nontraditional career choice, and were more likely to suggest traditional roles for women. Some females were specifically discouraged from nontraditional career goals (Haring and Beyard-Tyler, 1984).

In a nationwide Canadian study Baker (1985) reported that students complained that either counsellors were not present, as in rural schools, or they lacked specific

details of educational requirements and job opportunities or were out of touch with the modern world. Baker (1985) reported the existence of an invisible curriculum whereby teacher attitudes and guidance counsellor advice, appear to structure the educational experience of young women, so that by grade twelve they are being streamed into women's work. Another example of counsellor ineffectiveness was found by the Committee on Young Women's Issues (1986). Their study found that about 85% of students reported that there was a guidance counsellor in their school, but less than 7% had discussed their careers with them, yet 46% wanted more career information. The Women's Policy Office (1987) noted that some students reported that they were discouraged by counsellors from entering nontraditional fields. The Canadian Advisory Council on the Status of Women, (1989) found that where it occurs, counsellors discouragement of girls from pursuing nontraditional careers may take the form of failure to inform or failure to encourage such pursuits, as well as more outright attempts to discourage them.

It has also been found by Galassi et al (1985) that some instruments of career guidance and vocational aptitude testing have been found to contain implicit sex biases against women in nontraditional occupations.

Counsellors are advised to be aware of this potential source of bias.

However, on the more positive side, other studies show that these attitudes are beginning to change. Smith (1980) concluded on the basis of many studies that there was no evidence of counsellor bias against women, but that there may have been a small bias effect against women and nonstereotypical roles, in unpublished studies. Haring and Beyard-Tyler (1983) on a study of 112 counsellors found less negative attitudes than in 1981. They felt that this data indicated a trend away from job sex-typing by counsellors. Cherry (1985) reported that women in technology had found their programs through personal contacts and/or high school guidance counsellors, whom they highly recommended as sources of information on nontraditional job training. Baker (1985) noted that counsellors cannot be entirely blamed for students inadequate knowledge of the outside world, as teachers and parents, as well as others, must share the responsibility.

Auster and Auster (1981) pointed out that there may be parental resistance to sex-free career guidance as well as resistance from peers, teachers and the media, with which counsellors also have to contend. Bauer, Latreille and Witwicki (1985) noted that career

counselling, which promotes nontraditional work, expands women's perceptions of their career choices and job opportunities. Women can then realistically consider employment options with better long term benefits for themselves and for society.

Many recommendations have been made to improve the effectiveness of guidance counselling. Farmer (1976) suggested that counsellors be active in inservice education for teachers and parents, aimed at reducing stereotypic attitudes and behaviour from these sources. It was suggested by Chusimer (1983) that intervention activity would be most effective if introduced before or during elementary school years, not after the female has already decided on a career. Keith (1981) suggested that one role of counsellors was to warn women of potential difficulties for women in nontraditional careers, both in areas of training and in the workplace. Stringer and Duncan (1985) addressed the role of the counsellor working with blue collar women, and stressed that they use non-sexist languages, provide female role models, as well as training in assertiveness and legal rights and remedies. Borman and Guido-Dibrito (1986) made similar recommendations and added the need to create an awareness of sex-role attitudes in women and counsellors. The role of self-efficacy in career counselling is recognized by

Lent et al (1986) who advised that counsellors should be sensitive to clients who underestimate their ability with respect to desired educational and vocational goals and suggest that programs should be designed to assist clients in modifying their efficacy beliefs. Disabatino (1976) provided a very comprehensive list of recommendations for counsellors including awareness of bias and the elimination of stereotyping in the schools. However, she also emphasizes the importance of career counselling of women in a life-planning context, the necessity of educating attitudes in men as well as women, and themselves providing a role model of successful, well-integrated competent individuals. The Canadian Advisory Council on the Status of Women, (1989) recommended strongly that teaching and counselling practice be reviewed, and revised where necessary to be gender sensitive, to encourage girls and women to remain in math, science and technology course work, and to promote awareness of the full range of career choices. The failure of teachers and counsellors to eliminate the remaining stereotypic expectations, serves instead to reinforce and perpetuate traditional sex-role socialization of women (Fitzgerald and Crites 1980).

<u>The influence of significant others</u> as encouragers, facilitators and role models, has received wide support

in the literature and research on the nontraditional career development of women. It was determined by Stake and Levitz (1979) that women who are planning nontraditional careers tend to receive more encouragement from teachers, counsellors friends and significant others than those planning traditional careers. Psathas (1968) was one of the first to document the influence of potential marriage partners on female career development: Tangri (1972) noted the positive influence of female friends on role innovation. However, Tangri (1972) also noted that nontraditional women had more male friends that did traditional women and that, although faculty and friends provided some support, a tolerant and supportive boyfriend seemed to be more important at the college stage of their life cycle. O'Donnell and Anderson (1978) found that neither faculty nor peers were perceived as having an important influence at the college level. Peer influence is second in importance only to parental influence according to Auster and Auster (1982). They also noted that although adolescents usually exert a negative influence on nontraditional career goals by their conformist attitudes, in a highly intellectual social climate, they are able to exert a positive influence.

A nontraditional orientation was found by Lunneborg

(1982) to be fostered by a generally supportive atmosphere, in which siblings, peers, teachers and other adults encouraged them. In grade school, both males and females in the peer group were rated the strongest influence. Lunneborg recommended that part of a counsellor's role should be to advise female clients of the necessity of a supportive environment when considering a nontraditional career choice.

Vollmer (1983), in a study of fifty college seniors, found that women were encouraged to pursue educational and nontraditional career goals by friends, siblings and certain faculty members.

Nontraditional women consistently received more support than traditionals from male and female friends, family members, teachers and counsellors according to Bosak, Houser and Garvey (1985). Thus, they conclude that these significant others exert considerable influence upon a woman's career aspirations and they should therefore be made aware of the options available to women today and of their own role in influencing those options.

Research to increase the career motivation of girls was found by Farmer (1976) as pointing to the powerful influence of exposing them to nontraditional role models. Lemkau (1983) reported different patterns of personal

influences on the career choice of nontraditionals. They were exposed to a wide range of work models and they reported a positive influence of men in their lives, that is, from their father, male teachers, husbands and boyfriends from whom they acquired a high valuing for male activities. Douvan (1976) observed that the encouragement and support from significant others as role models appears to facilitate women's career development. However, there has been a serious lack of female models of educational and occupational achievement for females to observe and emulate. Consequently, they receive less support for achievement related behaviours than males. The influence of role models studied by Almquist (1974) revealed that they helped the student to understand the nature of the work role and to evaluate her own qualifications, performances and abilities. Splete and George (1985) observed that some families may have close significant relatives, who together with parents and older siblings, may serve as role models. It was suggested by Stringer and Duncan (1985) that tradeswomen act as role models and provide information to stimulate interest in male-dominated fields making them seem more accessible to potential participants. It was reported by Cherry (1985) that women working in trades and technology were the most helpful contact for other women to learn

about these jobs. She also noted that other people, specifically teachers, parents, spouses and partners, played a significant role in the occupational choice of more than one third of the women in her study.

Avebury (1985) recommended the use of role models to market nontraditional occupations, especially to women re-entering the work force. These role models would persuade women that many ordinary women, like themselves, were successfully performing these occupations and that this work could provide an interesting and exciting occupation for them as well. Avebury (1986) recommended that girls should be encouraged to prepare for a broad range of jobs by providing them with role models for a variety of occupations, including those of senior positions in the school system. The Women's Policy Office (1985) suggested exposing females to occupations in the trades by bringing into the high schools women who are working in these nontraditional fields.

However, a study by Brooks, Holohan and Galligaen (1985) found no significant effects of a nontraditional role modelling intervention program on the sex-typing of occupational preference or career salience on middle and high school girls. This intervention consisted of five, 45 minute, once a week, group sessions led by counsellors and consisting of tapes of nontraditional occupations and

discussions. The results of this study may have been more effective if real people were used as role models and if the intervention had covered a longer period of time. High school may also have been too late a time in the girls lives, to reverse deeply held stereotypic beliefs. Another study by Chamberlain, Cummings and Schul (1985) found that it was very difficult to access nontraditional females to take part in their intervention study.

Lunneborg (1982) also urged all aspiring women to locate role models and a mentor. A mentor, according to Herr and Cramer (1984), is an established powerful figure in an occupational field who takes a female under his or her protection and guides her progress in that field. Haring-Hidore (1987) stated that the chief advantage of mentoring for the protege is that of networking. Hayes (1987) noted that the mentor was in many cases a supportive partner, spouse, financier or role model, who prompted entrepreneurs to make the move into a business of their own. Unfortunately, however, according to Lefebre (1989) whereas for men, mentoring is a tradition, women will find few successful men willing to mentor them and even fewer successful women available as sponsors.

Schom-Moffatt and Braiundy (1989), in a national survey of women in orientation courses for trades and

technology, reported that the best role models were the women who instructed these courses and the resource persons who were brought in as speakers. These female resource persons enabled the women to think of themselves in these roles and allowed them an opportunity to ask questions about problems for women in the field. These sessions were very important for confidence building. The women in these classes supported one another and also depended heavily on women's support systems such as WITT (women in trades and technology). Other sources of support quoted were instructors, family and potential employers. Fitzgerald and Betz (1983), note that whereas the availability of environmental supports assists in the explanation of women's career orientation, innovation and implementation, the lack of such supports is a major barrier to the career development of many women.

Previous work experience is another important factor in nontraditional career development. As noted by Super (1953) previous work experience is especially important for pioneers for reality testing, for coming into contact with role models, and for working in jobs that were related in kind to the occupations they would eventually prefer. Super also noted the opportunity it provided pioneers for refining and enlarging their self concepts.

O'Donnell and Anderson (1978) found that both

traditional and nontraditional women had some previous work experience but that the nontraditionals had the most work experience related to their future career plans. Almquist and Angrist (1971) found that the work experience of nontraditionals gave them a broader exposure to role models. Almquist (1974) further noted that the influence of female role models helps to clarify the nature and integration of women's several roles. She also noted that work entry jobs have the added effect of making women realize that they are capable of performing jobs that are usually considered as unsuitable for women. Austin and Myint (1971) found that full time employment after high school graduation, plus an early interest in business and management, were the best predictors of plans to pursue a career in business, at that time. Today, a better predictor would probably be the number of related courses in math and science and business,that students had taken, as found by Ethington and Wolfe (1988).

Walshok (1981) saw the importance of previous work experience as allowing women in the trades to learn work place savvy. Walshok also noted that vocational interests and preferences evolve and become stabilized as a result of on the job experience for blue collar workers. Hayes (1987) saw the amount of previous

experience a female entrepreneur had before starting her own business as an important variable in her decision to start up on her own.

Participation in work study programs, volunteer work, or part time employment was found by Stringer and Duncan (1985) to provide valuable experience in a chosen trade before beginning training or participation in that area of nontraditional employment. Previous work experience was also found by Cherry (1985) as being a helpful factor in the current jobs of fifty percent of the women in trades and technology investigated by her study. It was also stated by Murray (1985) that lack of exposure to certain kinds of nontraditional work was one of the reasons women were not interested in applying for an apprenticeship program in the trades.

Several observations were made by Herr and Cramer (1984) regarding the value of work experiences. They noted that direct work experience allows an individual to learn a great deal about a specific job and that work experience is therefore a valuable strategy in career guidance. They suggested that school-related work experience programs and person power programs provide on the job training. They also advised that part time and summer jobs also provide exploratory opportunities which make students more occupationally aware. They stress

however that these opportunities increase in value as participants have a chance for feedback to reinforce or stimulate their career knowledge.

Emperical studies of related factors

Lent, Brown and Larkin (1986) conducted a study designed to explore the relationship of self-efficacy beliefs to educational/vocational choice and performance, and to assess the extent to which these beliefs predict academic grades, persistence, and perceived career options in science and engineering. The sample consisted of 75 male and 30 female students enrolled in a vocational planning course for students considering science and engineering majors. Self-efficacy was assessed by asking subjects to indicate whether they believed they could successfully complete the educational requirements and job duties performed in 15 science and engineering fields. On the perceived career options measure, subjects were asked to indicate their degree of interest in pursuing each of 15 science and engineering fields. Hierarchical regression analyses of the data indicated that self-efficacy does contribute significantly to the prediction of technical grades, persistence and range of career options. However, caution is advised that the results of this study may be highly speculative, due to the experimental nature of the

measures of self-efficacy currently available and the bias of the sample of high ability students already interested in science and engineering.

Childhood antecedents of adult women's masculinity, femininity, and career role choices was the subject of a study by Metzler-Brennan, Lewis and Gerrard (1985). The sample consisted of 63 career women and 62 homemakers. The subjects were asked to complete a retrospective survey of their childhood activities, interests, aspirations and academic pursuits. Each variable was assigned a masculinity and femininity score and was used to predict: (1) career choice (homemaker or career woman), (2) current masculinity and femininity, as measured by the Personal Attributes Questionnaire. Results showed that adult masculinity was strongly predicted by childhood feminine interests and activities whereas adult femininity was only weakly predicted by childhood masculine interests and activities. The results also indicated that childhood participation in sex-typed activities is not only associated with sex-typed interests and behaviour but is also related to adult masculinity/femininity and adult role choice. The childhood experiences of women who choose a career are different from those who choose to be homemakers. The possibility must be considered however of the additional

effect of other variables such as socialization and role models on career choice.

Sex differences in work values were investigated by Beutell and Brenner (1986) in a study which hypothesized that men and women with the same career orientation would not differ significantly in their work value preferences. The subjects for this study were 118 males and 84 females who were advanced undergraduate business students. The instrument used in this research was the 25 item Manhardt (1972) Work Values Scale. Manhardt developed this scale to provide a specific method of measuring sex differences in work values. Respondents rated the importance of each value on a five point scale. The results of this study revealed strong evidence of sex differences in work values. Women rated a pleasant environment and associates more highly than men. Men attach more importance to advancement (higher aspiration), problem solving (risk taking) and responsibility (commitment) than do women. Females also showed preference for other values usually at variance with traditional female patterns. No support was found for the hypothesis that similarity in career orientation is associated with similarity in work value importance. The findings of this study however also note that since both men and women appear to value traditionally masculine and

traditionally feminine work values, an androgynous work value pattern may be emerging. In other words, it appears that in order to succeed at traditionally male-dominated jobs, women are beginning to realize that they must adopt and apply similar work values to those espoused by men.

Lunneborg (1982) conducted a study on 142 women employed in nontraditional occupations or pursuing advanced degrees in these areas, in order to test the hypothesis of a very supportive family atmosphere in the background of nontraditional women. The sample for Lunneborg's study included women in law (5%), business administration (19%), social sciences (12%), natural science (41%), engineering (16%) and architecture (7%). The instrument for the study was a nontraditional career survey consisting of 30 items dealing with such background variables as age, marital status, parents' education and occupations, parental attitudes towards women working and emotional attachment to parents. It also contained a version of Basow's (1979, 1980) Influence of Role Model Scale. The analysis of the data indicated an advantaged home environment, highly educated parents and professional fathers for more than half of the sample. The majority of the mothers worked and both parents had a positive attitude towards women working.

Close relationships with parents were reported by the majority. Traditional sex roles were unimportant to most parents. The influence of parents, siblings and teachers was rated highest in high school. The influence of parents decreased whereas the influence of both male and female friends increased in undergraduate and graduate school years. The influence of their mothers as role models and as highly encouraging and supportive of nontraditional behaviours was reported by 71% of the sample. They also reported that 70% of the fathers provided the same supportive types of influence. Although this study presents the positive results of the various influences on these nontraditional women, there is no breakdown of the less than positive results which could be of some significance particularly in variables where a slim majority of positive responses was obtained.

The impact of women's school experiences on their career development was explored by Vollmer (1983), in her study on the educational factors that encourage women to pursue nontraditional careers. The sample for this study consisted of 50 female college seniors in scientific and business majors. The instruments used for this study were a structured interview with each subject, followed by a 26 item career survey taken from the Student Development Task Inventory (Winston, 1979). Mean scores

and a stepwise regression analysis revealed several ways in which educational institutions encourage or discourage women from entering nontraditional careers. Classroom experiences, doing well academically, and special projects, were indicated as encouragers. Interaction with graduate students and advisors were less encouraging, whereas professional conferences and workshops were seen as the most relevant encouragers. The women surveyed also reported that classes stressing lab work or math, were less encouraging to them, and that educational institutions could be of greater assistance in these areas. This study does identify science and math along with other encouragers and discouragers as areas of difficulty for nontraditional women. However, it fails to explain how these deficiencies occurred, or how they affected the choice of a major and subsequent career.

The studies reviewed here have all surveyed nontraditional women who were employed in the professions or who were preparing for that level of employment. Very few studies have been conducted on women employed in the many other types of nontraditional employment now available for females' consideration. A study on the factors which influenced the career choices of women in a broad range of nontraditional occupations, may help

motivate other young women to consider these areas of nontraditional employment. Such a study may also provide valuable information to the teachers, parents, guidance counsellors and others who influence these young women in their career decisions.

# CHAPTER 3

# METHODOLOGY

## Procedures

This study employed the survey method of research to collect information on factors influencing the nontraditional career choices of women currently employed in the labour force of Newfoundland and Labrador. A questionnaire was developed for this purpose and mailed out to a large sample of women, working in a wide variety of nontraditional occupations throughout the province.

## The Sample

The sampling universe for this study was all Newfoundland women who were employed in nontraditional occupations. The experimentally accessible population included those subjects from the sampling universe that the research was able to identify and locate.

The sources utilized in locating the sample were the following: All post-secondary institutions in Newfoundland and Labrador which provide training in nontraditional occupations for women; professional organizations; trade unions; government employment agencies; major corporations; large and small businesses; networking organizations; the media and personal contacts.

The subjects thus assembled were then grouped into

seven categories based on the ranking system compiled by Blishen and McRoberts (1977) in their revised socio-economic index for occupations in Canada. Principles used in the construction of the index were taken from the Canadian Classification and Dictionary of Occupations (1971). The application of the Blishen-McRoberts index to this study is illustrated in Table 1.

TABLE 1

BLISHEN-McROBERTS RANKINGS

| Group | | Occupation | Range of Rankings |
|---|---|---|---|
| I | Professionals | Dentists - | 3 |
| | | Accountants | 33 |
| II | Science/ Engineers | Engineers (civil) | 23 |
| | | Biologists | 50 |
| III | Forces | Police | 85 |
| | | Coast Guard | 88 |
| IV | Technologists | Electronic | 83 |
| | | Petroleum | 214 |
| V | Trades | Electricians | 326 |
| | | Carpenters | 422 |
| VI | Semi-Skilled | Truckers | 399 |
| | | Fish Plant Workers | 453 |
| VII | Resources | Farmers | 480 |
| | | Fisherwomen | 498 |

The professionals and women in science and engineering were grouped separately even though the rankings of some of the occupations in group II overlap those of group I and some members of group II undoubtedly

qualify as professionals. Two separate categories were established to distinguish between the professions in which women are almost equally represented in the training organizations at the present time (group I) and those professions in which women are as yet only marginally represented (group II).

Figures provided by the professional organizations and Memorial University indicate the rate of growth in female participation for the following professions: Medicine reports 21% practising females and 47% females in medical school; Law reports 20% practising females and 36% female admissions to the bar in the past four years; Chartered Accountants report 14% practising females and that 26% of the total graduates in M.B.A. programs are female, however, 46% of students in business are female; Dentistry reports 13% practising females and approximately 50% females in dental school.

In contrast, the association of professional engineers reports 3% female membership and 12% females in the current engineering program. Memorial University reported 30% female graduates in the physical sciences in 1981 compared with 21% in 1989. The Scientific Research Society, with all members holding advanced degrees in science, reported that 12.6% of its members were female. The foregoing figures are presented to substantiate the

rationale for separating group I and group II in this study.

It should also be noted that Blishen-McRoberts (1976) have ranked carpenters at the socio-economic level of semi-skilled workers. However, in Newfoundland and Labrador, since carpentry is taught in the trades colleges, most of the practitioners are members of trades unions, and carpentry is considered a skilled trade in this province, carpenters were therefore ranked with the skilled trades for the purpose of this study. Differences in occupational prestige in Newfoundland are also noted by Fagan and Ponder, (1983).

The following seven categories of nontraditional occupations were established for the purpose of this study:

GROUP I - The professionals included those occupations which require advanced professional training and membership in a professional organization in order to practice their professions.

GROUP II - The science and engineering group included those occupations which require a degree in science or engineering.

GROUP III - The forces included those occupations which require membership in a government service organization responsible for the protection of its citizens and

property.

GROUP IV - The technologists included those occupations which require training and accreditation from a recognized institute of technology.

GROUP V - The skilled trades included those occupations which require training at a recognized trades college followed by a period of apprenticeship and usually membership in a trade union.

GROUP VI - The semi-skilled workers included those occupations for which only a short period of formal training is generally required, supplemented by on-the-job training.

GROUP VII - The primary resource workers included those occupations in the primary industries of fishing, farming, mining and forestry which were formerly and primarily performed by men.

## The Instrument

The questionnaire developed for this study was a self-report type instrument consisting of thirty-five questions which enquired into the subjects' own perceptions of each of the factors in this study which influenced their nontraditional choice of career. These factors were: self-efficacy, interest, work values, family based factors, educational factors, influence of significant others and previous work experience.

Whenever possible, closed questions were used. When attitudinal factors were being measured, respondents were asked to rank their choices in a preferred order. More detail is provided on the questionnaire in chapter 4.

Several open ended questions were included to provide an opportunity for the women to discuss personal opinions and experiences. The general impressions gained from the responses are included in the "Implications for career decision-making" in chapter 5.

The questionnaire consisted of two sections. Section one included background information on the subjects and their parents. Section two included information on some of the factors which influence female nontraditional career choice. The subjects were asked to consider how these factors influenced them in childhood, adolescence and adulthood.

The three internal factors investigated in this study were: self-efficacy, interests, and work values.

(1) Self-efficacy - These questions measured the person's self-perceived ability in academic and work place endeavours. Two measures were taken of perceived academic ability, one at the grade school level and one at the high school level. Perceived work ability was measured at the adolescent stage and at the adult stage. (Questionnaire items no. 7, no. 14a and b, and no. 23).

(2) Interests - These questions measured the percentage of nontraditional and traditional interests chosen at each stage of development. Subjects were requested to choose from lists containing equal numbers of traditional and nontraditional activities at each of three stages of development.

(Questionnaire items no. 8, no. 15, and no. 24).

(3) Work values - The three work values investigated in this study were levels of aspiration, commitment and risk taking. At the childhood and adolescent levels, three sets of statements were presented in which each set contained a high and a low rating for the value that was measured. Subjects were asked to select one statement from each set. At the adult level, subjects were asked to respond positively or negatively to a series of questions, one for each value tested.

(Questionnaire items no. 9, no. 17, and no. 26a, b and c).

The four external factors influencing nontraditional career choice by females investigated in this study were: family factors; educational factors; the influence of significant others; and previous work experience.

(1) Family factors consisted of:

(a) Parents' interest in their childrens' activities at three stages of development.

(b) Fathers' and mothers' level of education.

(c) Fathers' and mothers' main occupation.

(d) The perceived success of both parents in their paid occupations.

Parental interest at each stage of development was measured by one question for each parent using a forced choice scale having four levels of response.

The parents' level of education was incorporated into the analysis at this point to add to the family background profile.

The fathers' occupations were classified into four very broad categories to provide some basis for the families' socio-economic background. The professional category used the same criteria as was employed for that category in the survey sample. The semi-professional category was a more loosely defined group which included managerial, administrative, teaching and clerical occupations. The technology and trades category combined the criteria for group IV and group V of the survey sample. The semi-skilled category included all other occupations for which little formal training was required. The additional category of housewife was added to the mothers' occupations so that a measure of the working versus nonworking mothers could be ascertained.

The perceived career success of the parents provides

some indication of the degree and type of influence this factor might have had on their daughters' nontraditional career choice.

(Questionnaire items no. 12b, no. 18a, no. 27, no. 5a, no. 6a, b, and c).

(2) Educational factors - These factors included

(a) The subjects' level of education.

(b) The school subjects in which they did best.

(c) Attendance or non-attendance at a single-sex school.

(d) Availability and influence of career education.

(e) Career decision making points in time.

The ten original categories for the subjects' level of education were condensed into five categories based on the data returned, and to clarify the analysis.

The proficiency and interest of the subjects in math and science was determined by two questions presented at the grade school and high school levels.

Single sex schools are considered by most studies to be less supportive of nontraditional female careers than co-educational schools. Subjects were simply asked whether or not they had attended a single sex school.

On the subject of career counselling, subjects were asked whether or not it was available in their schools and whether or not it had helped in their choice of a

nontraditional career.

In determining the stage at which career choice was made subjects were asked as children, what they wanted to be when they grew up. In adolescence they were asked if their present career had been chosen by the end of high school. At the adult stage they were asked if their present career was their first adult choice. This latter question was to identify the later or even mid-life career choosers.

(Questionnaire items - no. 11b, no. 19b, no. 31b, no. 5a and b, no. 13b, no. 21a, b and c, and no. 35a).

(3) Significant others - The lists of possible significant others changed slightly for each stage of development to correspond with the persons shown by the literature to influence female nontraditional career choice at the different life stages under investigation. For example, siblings, relatives, friends and neighbours were shown to be influential at all stages of development whereas in adolescence teachers, coaches and counsellors gained greater importance, and for adults, husbands, instructors and women's group gained influence on women's career choices.

(4) Work experience - The focus of this factor was on nontraditional work experience. At the childhood level subjects were asked to select all those that applied,

from four choices, two of which were traditional female chores and two that were nontraditional chores.

(Questionnaire items no. 12a, no. 18b and d, no. 30a and c).

At the adolescent level, subjects were asked to choose all those that applied, from a list of four traditional female choices and four nontraditional choices. At the adult level subjects were asked to choose three from a list of six types of work, half of which were considered traditional for women and half of which were nontraditional.

(Questionnaire items no. 13a, no. 20, and no. 32a).

A sample questionnaire is included in the Appendix of this study.

A study by Dr. Miriam Yu (1972) provided ideas and structure for some of the questions, such as those concerning educational background, parents occupations, influence of others, and reasons for present career choice.

Two pilot tests of the questionnaire were carried out, one with a group of ten veterinarians and one with a group of ten semi-skilled workers. Some revisions were then made before the questionnaire was distributed to the total sample of subjects.

## The Survey Procedures

The questionnaires were distributed by mail in June 1989 and a follow up letter was sent to non-respondents in September.

A letter of transmittal accompanied each questionnaire, stating briefly the purpose of the study, how the data would be used, and a statement that completion and return of the questionnaire indicated consent for the aforementioned purposes. A guarantee of confidentiality and anonymity was also promised based on a linkage system using an identifier, that would later be destroyed.

Questionnaires were sent to the total sample identified except in the case of the chartered accountants. Even though confidentiality and anonymity were guaranteed in this study, the chartered accountants preferred to conduct their own random sample of their membership and distribution of questionnaires. A mini-lottery for a gift certificate of $100.00 at the store of their choice was offered as an enticement for participation, particularly directed at those groups having little or no experience in academic research. The lottery was drawn by Dr. William Spain in October 1989 and witnessed by Ms. Pat Wall.

Several questions included in this questionnaire

were not considered in the analyses of this study. The purpose of these questions was to provide data for a follow-up study on barriers to nontraditional female employment. The data was collected as a matter of convenience at this time.

Table 2 indicates the number of questionnaires distributed, the number of respondents and the percentage of respondents, for each of the seven groups surveyed.

TABLE 2

SAMPLE SIZE

| Group | | Questionnaires Distributed | Returned | Percentage of Return |
|---|---|---|---|---|
| I | Professionals | 177 | 83 | 46.8% |
| II | Science/ Engineers | 96 | 47 | 48.9% |
| III | Forces | 45 | 21 | 46.6% |
| IV | Technologists | 129 | 52 | 40.3% |
| V | Trades | 114 | 24 | 21.0% |
| VI | Semi-skilled | 124 | 29 | 23.4% |
| VII | Resources | 79 | 23 | 29.1% |
| Totals | | 764 | 279 | 36.5% |

The specific occupations which constitute each of the seven groups are provided below in Table 3.

TABLE 3

COMPOSITION OF SAMPLE

| Group | Occupation | Number | Total |
|---|---|---|---|
| I Professions | Medicine | 34 | |
| | Law | 25 | |
| | Dentistry | 5 | |
| | Business (C.A.'s, M.B.A.s) | 19 | |
| | | | 83 |
| II Science/ Engineering | Engineers | 24 | |
| | Geologists | 8 | |
| | Biologists | 8 | |

TABLE 3 CONT'D

| Group | Occupation | Number | Total |
|---|---|---|---|
| | Archeologist | 1 | |
| | Research Technicians | 5 | |
| | | | 47 |
| III Forces | Police | 9 | |
| | Armed Forces | 9 | |
| | Coast Guard | 3 | |
| | | | 21 |
| IV Technologists | Food Technology | 15 | |
| | Marine Technology | 8 | |
| | Mineral Technology | 3 | |
| | Forestry Technology | 4 | |
| | Petroleum Technology | 2 | |
| | Drafting | 11 | |
| | Electronics | 8 | |
| | Photogammetry | 1 | |
| | | | 52 |
| V Trades | Carpentry | 11 | |
| | Welding | 5 | |
| | Motor Vehicle Repairs | 4 | |
| | Diesel Mechanic | 2 | |
| | Electrician | 1 | |
| | Small Equipment Repair | 1 | |
| | | | 24 |
| VI Semi-skilled | Security Guards | 7 | |
| | Sewer Project | 6 | |
| | House Painters | 6 | |
| | Fish Plant Workers | 5 | |
| | Truckers | 3 | |
| | Bartenders | 2 | |
| | | | 29 |
| VII Resources | Fisherwomen | 10 | |
| | Farmers | 8 | |
| | Silvaculture | 3 | |
| | Miners | 2 | |
| | | | 23 |

## The Analysis

The basic analysis procedure was to compare the seven occupational groupings with respect to their responses to the various questions.

A cross tabulation analysis of the various factors involved in the nontraditional career choice of females in each occupational group was carried out at three stages of development, to ascertain the differences or similarities in the degree to which these factors were present in the several groups surveyed.

The cross tabulations that were prepared to compare the seven occupational groups were tested for differences using a chi-square test of independence. The null hypotheses were rejected at the .05 level of significance.

A non-statistical approach was taken based on developing both a consistency of interpretation across factors and a logical theoretical application of the results. A descriptive analyses was compiled, which indicated the difference or similarities between the groups for the factors investigated and the differences within the same group, as well as between groups, at three stages of development.

# CHAPTER 4

## ANALYSIS OF DATA

In this chapter each research question will be examined by analyzing the responses of the various groups to questionnaire items related to the research question at each of three levels of development namely, childhood, adolescence and adulthood. After an independent examination has been made of the results for each occupational group, a comparison will be made of the results between the groups at the three developmental stages.

In the analysis of many of the variables the "above average" results were the only results reported and commented upon. The rationale for this approach is explained by the fact that high degrees of the factors in this study have been positively associated, in the literature, with female nontraditional career choice, whereas average or below average degrees of these factors have not been associated positively with nontraditonal career choice.

Research question 1: What, if any, are the similarities or differences to be found in the development of self efficacy in the nontraditional occupational groups included in this study?

A high level of self-efficacy was shown in the

literature to be a necessary quality in female nontraditional career choosers, in order to enable them to surmount the many barriers surrounding such a career choice.

The questionnaire items that applied to this research question were as follows:

Childhood

(1) How would you rate your overall ability in grade school, compared to your classmates?

(Questionnaire item no. 7)

Adolescence

(1) How would you rate your ability in high school, compared to your fellow students?

(Questionnaire item no. 14a)

(2) If you worked full-time or part-time as a teenager, rate your performance compared to your fellow workers.

(Questionnaire item no. 14b)

Adult

(1) How would you rate your ability to perform your present nontraditional job, or the nontraditional job for which you trained, compared to others who do the same kind of work?

(Questionnaire item no. 23)

In the analysis of all four questions on self-efficacy, the scores for the first and second categories

were combined to achieve the "above average" rating that was reported.

Statistical data for the following conclusions are contained in Table 4.

The chi-square test of differences between the groups was significant.

## Results by Groups

The professionals generally rated themselves above average in academic ability. At the grade school 91.6% and at the high school level 96.4% of this group reported that they had above average ability. Ability at work was reported at a much lower level at the adolescent stage, where it was indicated that 55.1% of the professionals exhibited above average ability. Adult ability at work was perceived as somewhat higher with 73.5% of the group reporting above average ability in their present occupations.

The women in science and engineering also reported an extremely high degree of ability in their academic pursuits. At the grade school level 93.6% of this group perceived themselves as having above average ability, whereas the same degree of ability was attributed to 95.7% of the science/engineers group at the high school level. Above average adolescent work ability was indicated by 76.7% of the group and this level of ability

Table 4
Percentage of Above Average Responses
To Questions Concerning Self Efficacy At
Three Developmental Stages

| Questionnaire Items | Profs | | | Sc/Eng | | | Forces | | | Tech | | | Trades | | | Semi-Skilled | | | Resources | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T.No | No. | % | T.No | No. | % | T. No |
| Overall Ability in Grade School[a] | 76 | 91.6 | 83 | 44 | 93.6 | 47 | 14 | 66.7 | 21 | 30 | 57.7 | 52 | 6 | 25.0 | 24 | 9 | 31.0 | 29 | 6 | 31.8 | 22 |
| Overall Ability in High School[a] | 79 | 96.4 | 82 | 45 | 95.7 | 47 | 14 | 66.7 | 21 | 26 | 50.0 | 52 | 9 | 40.9 | 22 | 8 | 27.6 | 29 | 5 | 25.9 | 20 |
| Adolescent Ability to Work[a] | 27 | 55.1 | 49 | 23 | 76.7 | 30 | 12 | 75.0 | 16 | 20 | 71.4 | 20 | 6 | 35.2 | 17 | 10 | 52.6 | 19 | 5 | 31.3 | 16 |
| Adult Ability at Work[a] | 61 | 73.5 | 83 | 36 | 80.0 | 45 | 17 | 95.0 | 20 | 35 | 68.6 | 51 | 11 | 45.9 | 24 | 20 | 68.9 | 29 | 10 | 47.6 | 21 |

[a] Differences between groups significant at the .05 level of confidence

at work was reported by 80% of the group at the adult level.

The forces reported a moderate degree of success in academic ability with 66.7% of the group indicating above average ability at both the childhood and adolescent levels. Seventy-five percent of the forces denoted above average ability at work in adolescence, while 95% of the group claimed that level of ability in their present adult occupations.

At the grade school level 57.7% of the technologists reported that they had above average academic ability in grade school, whereas 50% of the group reported that they had above average ability in high school. They also reported a high degree of perceived ability in the work force, as 71.4% of them rated themselves to be above average as teenagers and 68.6% of the group reported above average performance as adults.

Of the trades women, 25% reported that they had above average ability in childhood, whereas the rate rose to 40.9% in high school. Thirty-five percent of the trades saw themselves as above average in work ability as teenagers and 45.9% of the group considered themselves above average in adulthood.

Thirty-one percent of the women in semi-skilled occupations, rated themselves as above average in grade

school and 27.6% rated themselves above average in high school. Fifty-two percent of this group reported above average work ability as teenagers and 68.9% expressed this same degree of self efficacy in adulthood.

Of the women in primary resources, 31.8% rated themselves as above average in childhood, and 25% rated themselves at this level in high school. Work ability in adolescence was seen as above average for 31.3% of the group and rose to 47.6% in adulthood.

Comparison between Groups

The professionals rated themselves highest in perceived academic ability in high school followed closely by science/engineering who were also very high. Academic ability was seen as extremely high for both of these groups at both school levels compared to all other groups. The forces were third in rank with identical scores for grade school and high school. Technology was next followed by Trades. The semi-skilled and resource groups indicated that approximately one-quarter of their number had above average academic ability in high school.

The third measure of self efficacy was of perceived ability at work as adolescents. As not all of the subjects had jobs at this level, the percentages are based on the numbers who responded, rather than for the total group as indicated in Table 4. Approximately

three-quarters of the science/engineering group rated themselves as having above average work ability in adolescence. They were followed very closely by the forces and then technology. About one-half of the professionals and semi-skilled groups rated their number in this category. The trades and resource groups scored lowest on this variable with approximately one-third of their members indicating that they were above average in adolescent work ability.

In the adult measure of work ability, the forces rated themselves highest of all groups with a very high score. Science/engineering ranked second followed by the professionals. The semi-skilled and technology groups were very close behind the professionals. The resources and trades groups were lowest, but still indicated a fairly high level of self efficacy, in that close to half of their members rated themselves as above average in ability at their present occupations.

Developmental Comparison - See Figure 1

The professionals and the science/engineering groups perceived themselves as having a higher level of ability in their academic endeavours than in the work place. For all of the other groups the reverse was true, in that they perceived themselves to have a higher level of ability in the work place than in school.

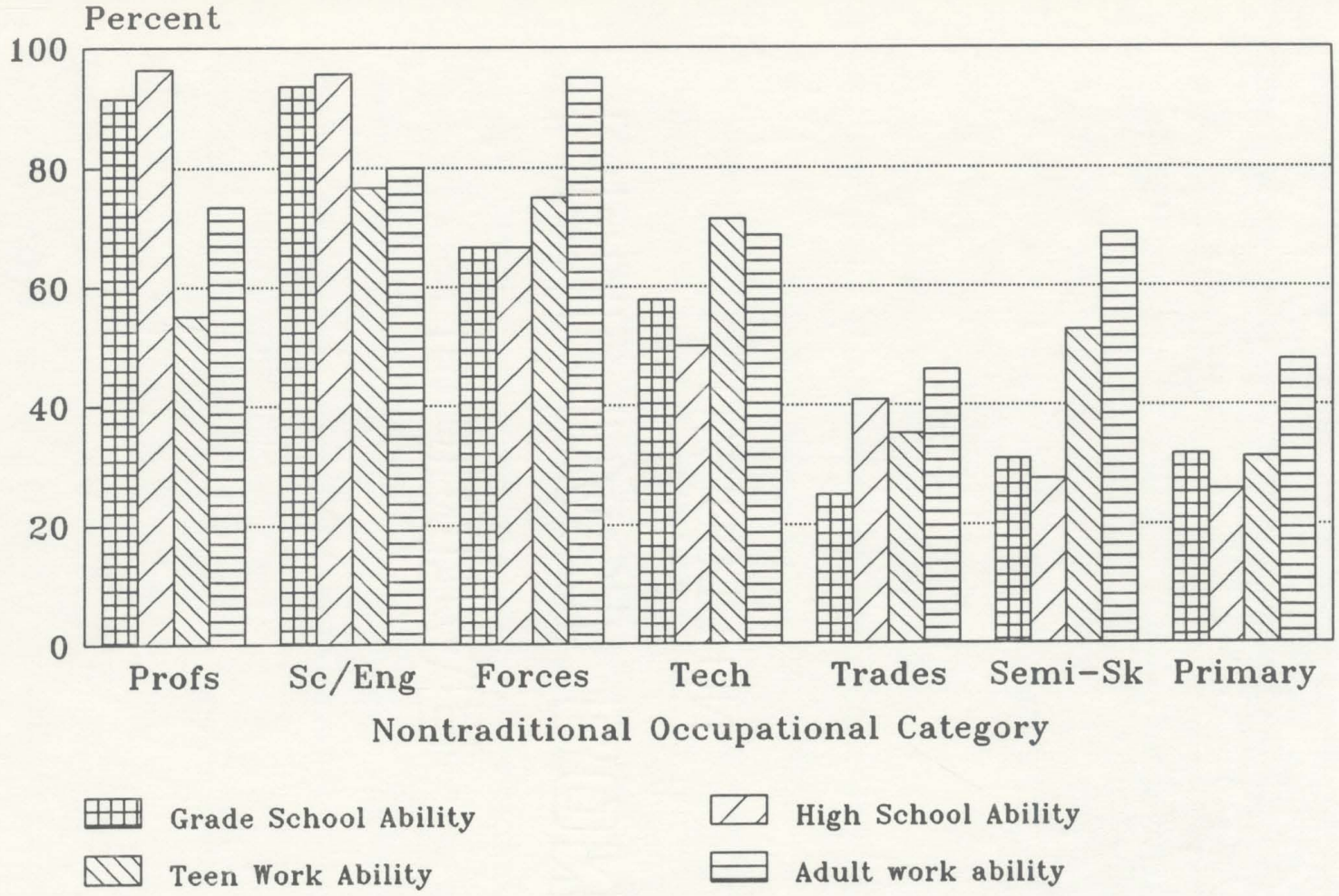


Figure 1
Self efficacy at three developmental stages

However, for the trades and resource groups the rate of improvement was minimal and these two groups indicated a lower level of self efficacy both at school and at work compared to the other groups.

Research question 2: What, if any, are the similarities or differences to be found in the development of interests in the nontraditional occupational groups included in this study?

The classifications of the items pertaining to childhood and adolescent interests were based on the review of the literature dealing with the socialization and sex role stereotyping of girls and women in Newfoundland fifteen or twenty years ago. This literature indicates a much more rigid sexual division of roles in this province than elsewhere during that period (Porter 1983, 1986). These classifications are appropriate only as a reflection of Newfoundland society during the period that these women were growing up and may not represent typical traditional and nontraditional activities in other societies.

The questionnaire items that applied to this research question were as follows:

Childhood

(1) Which two of the following activities did you prefer as a child? (Questionnaire item no. 8)

(a) Domestic play

(b) Outdoor activities

(c) Indoor activities

(d) Team sports

Adolescence

(1) Which three of the following activities were you most interested in as a teenager? (Questionnaire item no. 15)

(a) Reading/writing

(b) Public speaking/acting

(c) Music/singing

(d) Knitting/sewing

(e) Outdoor activities

(f) Fixing things

Adult

(1) Which three of the following types of work do you prefer to do? (Questionnaire item no. 24)

(a) Working with things

(b) Working with ideas/symbols

(c) Work that is creative

(d) Working with people

(e) Work that is verbal

(f) Work that is systematic

This question was analyzed as if two equal choices were made. Priority was disregarded. As there was no

significant differences in the percentages for the first and second choices when they were analyzed separately, the average of the combined percentages of the nontraditional choices was the final statistic that was used. Indication of the traditional or nontraditional classification of an item is provided in the appropriate table.

Statistical data for the following conclusions, as well as categories of questions on traditional and nontraditional activities, are contained in Tables 5, 6 and 7.

The chi-square test of differences between the groups was significant.

## Results by Groups

### Childhood

The professionals were the only group who showed a preference for traditional interests at the childhood level. All other groups expressed a propensity towards nontraditional interests at this stage. Of the professionals only 37.3% chose nontraditional activities in childhood whereas 62.7% chose more traditional activities.

The science/engineers showed a higher degree of nontraditional interests than traditional interests in childhood. Of the science/engineering groups 56.1% chose

Table 5
Childhood Interests
Percentage of Responses For Each Group

| Questionnaire Items | Profs | | | Sc/Eng | | | Forces | | | Tech | | | Trades | | | Semi-Skilled | | | Resources | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T.No | No. | % | T.No | No. | % | T. No |
| Traditional | | | | | | | | | | | | | | | | | | | | | |
| Domestic play (e.g. dolls) | 41 | 49.4 | 83 | 10 | 21.3 | 47 | 6 | 28.6 | 21 | 13 | 25.0 | 52 | 8 | 33.3 | 24 | 9 | 31.0 | 29 | 10 | 43.5 | 23 |
| Indoor | 53 | 63.9 | 83 | 26 | 55.3 | 47 | 11 | 52.4 | 21 | 24 | 46.2 | 52 | 7 | 29.2 | 24 | 9 | 31.0 | 29 | 3 | 13.0 | 23 |
| Nontraditional | | | | | | | | | | | | | | | | | | | | | |
| Outdoor | 48 | 57.8 | 83 | 32 | 68.0 | 47 | 12 | 57.1 | 21 | 43 | 82.7 | 52 | 18 | 75.0 | 24 | 21 | 72.4 | 29 | 19 | 82.6 | 23 |
| Team Sports | 8 | 10.1 | 82 | 14 | 29.8 | 47 | 6 | 28.6 | 21 | 14 | 26.9 | 52 | 10 | 41.7 | 24 | 10 | 41.7 | 29 | 6 | 26.0 | 23 |
| Total Traditional | | | 94 | | | 36 | | | 17 | | | 37 | | | 15 | | | 18 | | | 13 |
| Average Traditional | | 62.7 | | | 43.9 | | | 48.6 | | | 39.4 | | | 34.9 | | | 36.7 | | | 34.2 | |
| Total Nontraditional | | | 56 | | | 46 | | | 18 | | | 57 | | | 28 | | | 31 | | | 25 |
| Average[a] Nontraditional | | 37.3 | | | 56.1 | | | 51.4 | | | 60.6 | | | 65.1 | | | 63.3 | | | 65.7 | |
| Total Number fo Choices | | | 150 | | | 82 | | | 35 | | | 94 | | | 43 | | | 49 | | | 38 |

[a] Differences between groups significant at the .05 level of confidence

Table 6
Adolescent Interests
Percentage of Responses For Each Group

| Questionnaire Items | Profs | | | Sc/Eng | | | Forces | | | Tech | | | Trades | | | Semi-Skilled | | | Resources | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T.No | No. | % | T.No | No. | % | T. No |
| Traditional | | | | | | | | | | | | | | | | | | | | | |
| Reading/Writing | 62 | 74.7 | 83 | 31 | 65.9 | 47 | 14 | 66.7 | 21 | 33 | 63.5 | 52 | 5 | 20.8 | 24 | 6 | 20.7 | 29 | 7 | 30.5 | 23 |
| Music/Singing | 44 | 53.0 | 83 | 14 | 29.8 | 47 | 12 | 57.1 | 21 | 18 | 34.6 | 52 | 7 | 29.2 | 24 | 17 | 58.6 | 29 | 9 | 39.1 | 23 |
| Knitting/Sewing | 36 | 43.4 | 83 | 22 | 46.8 | 47 | 9 | 42.9 | 21 | 19 | 36.5 | 52 | 10 | 41.7 | 24 | 6 | 20.7 | 29 | 11 | 47.8 | 23 |
| Total Number of Traditional Choices | | | 142 | | | 67 | | | 35 | | | 70 | | | 22 | | | 29 | | | 27 |
| % of Traditional Choices | | 68.6 | | | 52.7 | | | 67.3 | | | 50.7 | | | 37.9 | | | 50.7 | | | 51.9 | |
| Nontraditional | | | | | | | | | | | | | | | | | | | | | |
| Public Speaking | 18 | 21.7 | 83 | 5 | 10.6 | 47 | 6 | 28.6 | 21 | 12 | 23.1 | 52 | 3 | 12.5 | 24 | 7 | 24.1 | 29 | 3 | 13.0 | 23 |
| Outdoor | 45 | 54.2 | 83 | 33 | 70.2 | 47 | 9 | 42.9 | 21 | 42 | 80.8 | 52 | 19 | 79.2 | 24 | 16 | 55.2 | 29 | 21 | 91.3 | 23 |
| Fixing Things | 2 | 0.02 | 83 | 12 | 25.5 | 47 | 2 | 0.10 | 21 | 14 | 26.9 | 52 | 14 | 58.3 | 24 | 5 | 17.2 | 29 | 1 | 0.04 | 23 |
| Total Number of Nontraditional Choices | | | 65 | | | 50 | | | 17 | | | 68 | | | 56 | | | 28 | | | 25 |
| % of Nontraditional Interests[a] | | 31.4 | | | 39.3 | | | 32.7 | | | 49.3 | | | 62.0 | | | 49.1 | | | 48.0 | |

[a] Differences between groups significant at the .05 level of confidence

Table 7
Adult Interests
Percentage of Responses For Each Group

| Questionnaire Items | Profs | | | Sc/Eng | | | Forces | | | Tech | | | Trades | | | Semi-Skilled | | | Resources | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T.No | No. | % | T.No | No. | % | T. No |
| Traditional | | | | | | | | | | | | | | | | | | | | | |
| Working With People | 65 | 78.3 | 83 | 26 | 55.3 | 47 | 18 | 85.7 | 21 | 39 | 75.0 | 52 | 21 | 87.5 | 24 | 20 | 69.0 | 29 | 19 | 82.5 | 23 |
| Systematic Work | 33 | 39.8 | 83 | 11 | 23.4 | 47 | 10 | 47.6 | 21 | 26 | 50.0 | 52 | 9 | 37.5 | 24 | 10 | 34.5 | 29 | 12 | 52.2 | 23 |
| Creative Work | 32 | 38.6 | 83 | 16 | 34.0 | 47 | 10 | 47.6 | 21 | 15 | 28.8 | 52 | 8 | 33.3 | 24 | 11 | 37.9 | 29 | 7 | 30.4 | 23 |
| Average of Traditional Choices | | 52.6 | | | 38.1 | | | 63.3 | | | 51.6 | | | 52.8 | | | 53.2 | | | 58.5 | |
| Nontraditional | | | | | | | | | | | | | | | | | | | | | |
| Working With Things | 37 | 44.6 | 83 | 35 | 74.5 | 47 | 6 | 28.6 | 21 | 36 | 69.2 | 52 | 21 | 87.5 | 24 | 19 | 65.5 | 29 | 17 | 73.9 | 23 |
| Working With Ideas | 50 | 60.2 | 83 | 44 | 93.6 | 47 | 5 | 23.8 | 21 | 24 | 46.2 | 52 | 11 | 45.8 | 24 | 8 | 27.6 | 29 | 6 | 26.1 | 23 |
| Verbal Work | 30 | 36.1 | 83 | 7 | 14.9 | 47 | 11 | 52.4 | 21 | 15 | 28.8 | 52 | 2 | 8.3 | 24 | 9 | 31.0 | 29 | 4 | 17.4 | 23 |
| Average of Nontraditional Choices[a] | | 47.4 | | | 61.9 | | | 36.7 | | | 48.4 | | | 47.2 | | | 46.8 | | | 41.5 | |
| Total Choices | | | 247 | | | 139 | | | 60 | | | 155 | | | 72 | | | 77 | | | 65 |

[a] Differences between groups significant at the .05 level of confidence

nontraditional activities and 43.9% chose traditional activities.

The forces showed a slightly higher degree of interest in nontraditional versus traditional interests in childhood. Of this group 51.4% chose nontraditional activities and 48.6% chose traditional activities.

The technology group also showed a preference for nontraditional interests in childhood. Nontraditional activities were chosen by 60.6% of the group whereas 39.4% of the technologists chose the more traditional interests.

The trades group chose nontraditional interests almost twice as often as traditional interests. Sixty-five percent of the trades group chose nontraditional activities compared to 35% who chose traditional activities.

Nontraditional interests were the preferred choice of the majority of the semi-skilled group. Sixty-three percent of the semi skilled group chose nontraditional activities whereas 36.7% made traditional choices.

The resource group also showed a propensity toward nontraditional interests in childhood. Within the resource group 65.7% chose nontraditional activities compared with 34.2% who made traditional choices.

## Comparison between Groups

The overall ranking of the various groups in terms of nontraditional childhood interests were as follows: the resource group had the greatest interest in nontraditional activities, followed by trades and semi-skilled, then technology, science/engineering and the forces. The professionals had the fewest nontraditional interests in childhood of all the groups.

## Results by Groups

### Adolescence

The percentage of respondents in the professional group who selected traditional interests was more than twice as great as those who chose nontraditional interests at the adolescent level. Of the professionals only 31.4% chose nontraditional activities whereas 68.6% chose traditional activities.

The science/engineers also showed a preference for traditional interests at the adolescent stage. From among this group 39.3% chose nontraditional activities whereas 52.7% made more traditional choices.

Traditional interests were the preference for twice as many of the forces compared to nontraditional interests. Thirty-three percent of the forces chose nontraditional activities and 67.3% chose traditional activities.

Nontraditional and traditional interests were almost equal for the technology group, with traditional having a very slight edge. Nontraditional activities were chosen by 50.7% of the technologists and traditional activities were chosen by 49.3% of this group.

The trades indicated a definite preference for nontraditional interests in adolescence with 62% of the group indicating such a preference and 37.9% indicating a preference for traditional activities.

The semi-skilled group indicated an almost equal interest in traditional and nontraditional activities with traditional only marginally higher. Forty-nine percent of this group chose nontraditional activities whereas 50.7% chose traditional activities.

The resource group also exhibited a very slight preference for traditional over nontraditional interests in adolescence. Forty-eight percent of the resource group chose nontraditional activities and 51.9% chose traditional activities at the adolescent stage.

## Comparison between Groups

The overall ranking of the various groups in terms of nontraditional interests in adolescence were as follows: the trades group had the greatest interest in nontraditional activities followed by technology and semi skilled, then resources, science/engineers and the

forces; the professionals had the fewest nontraditional interests in adolescence of all the groups.

## Results by Groups

### Adult

At the adult level, the professionals reported an almost equal interest in nontraditional and traditional activities. However, their interests were still predominantly traditional. Within the professional group 47.4% made nontraditional choices and 52.6% made traditional choices in adulthood.

The science/engineering group was the only group that indicated a definite propensity toward nontraditional interests at the adult stage. From among this group 61.9% chose nontraditional activities and 38.1% chose traditional activities.

The forces showed a definite preference for traditional interests at the adult level and reported the highest percentage of traditional choices of all the groups. Of the forces, 36.7% chose nontraditional and 63.3% chose traditional activities.

The technologists expressed a slight preference for traditional interests at the adult stage but also with a high predilection for nontraditional interests. Forty-eight percent of the technologists made nontraditional choices compared to 51.6% who made traditional choices.

The trades women also expressed a slightly higher preference for adult traditional interests. However, this group also had close enough scores to be considered universal in their interests. Forty-seven percent of the trades chose nontraditional activities whereas 52.8% preferred traditional activities.

The semi-skilled group expressed a slight preference for traditional interests at the adult stage but they too could be considered nonpartisan in their interests with 46.8% of their number choosing nontraditional activities versus 53.2% choosing traditional activities.

The resource group showed a little more definite trend toward traditional interests at the adult stage. Of this group 41.5% indicated a preference for nontraditional activities and 58.5% preferred traditional activities.

## Comparison between Groups

At the adult level of development, the science/ engineers were the only group that indicated a definite preference for nontraditional interests. Several other groups showed a slightly higher preference for traditional interests. The percentages for traditional and nontraditional interests however were almost equal for these groups. In ranking order these groups were; technology, professionals, trades and semi-skilled. The

resource group displayed a more definite preference for traditional interests, whereas the forces had the least interest in nontraditional activities of all the groups.

Developmental Comparison - See Figure 2

In the overall developmental table, see figure 2, two distinct patterns of development emerged. In the professional and science/engineering groups, the lowest nontraditional scores appeared in adolescence while the highest nontraditional scores were achieved in adulthood. However, in the technical, trades, semi-skilled and resource groups, the lowest nontraditional scores appeared in adulthood while the highest nontraditional scores were achieved in childhood. The exception to these predominating patterns was in the forces where the highest nontraditional score was in childhood and the lowest was in adolescence.

Research question 3: What, if any, are the similarities or differences to be found in the development of the work values of levels of aspiration, commitment and risk taking, among the nontraditional occupational groups of women included in this study?

High levels of aspiration commitment and risk taking are three of the work values which distinguish women in nontraditional occupations from traditional women as described in the review of the literature. As no measure

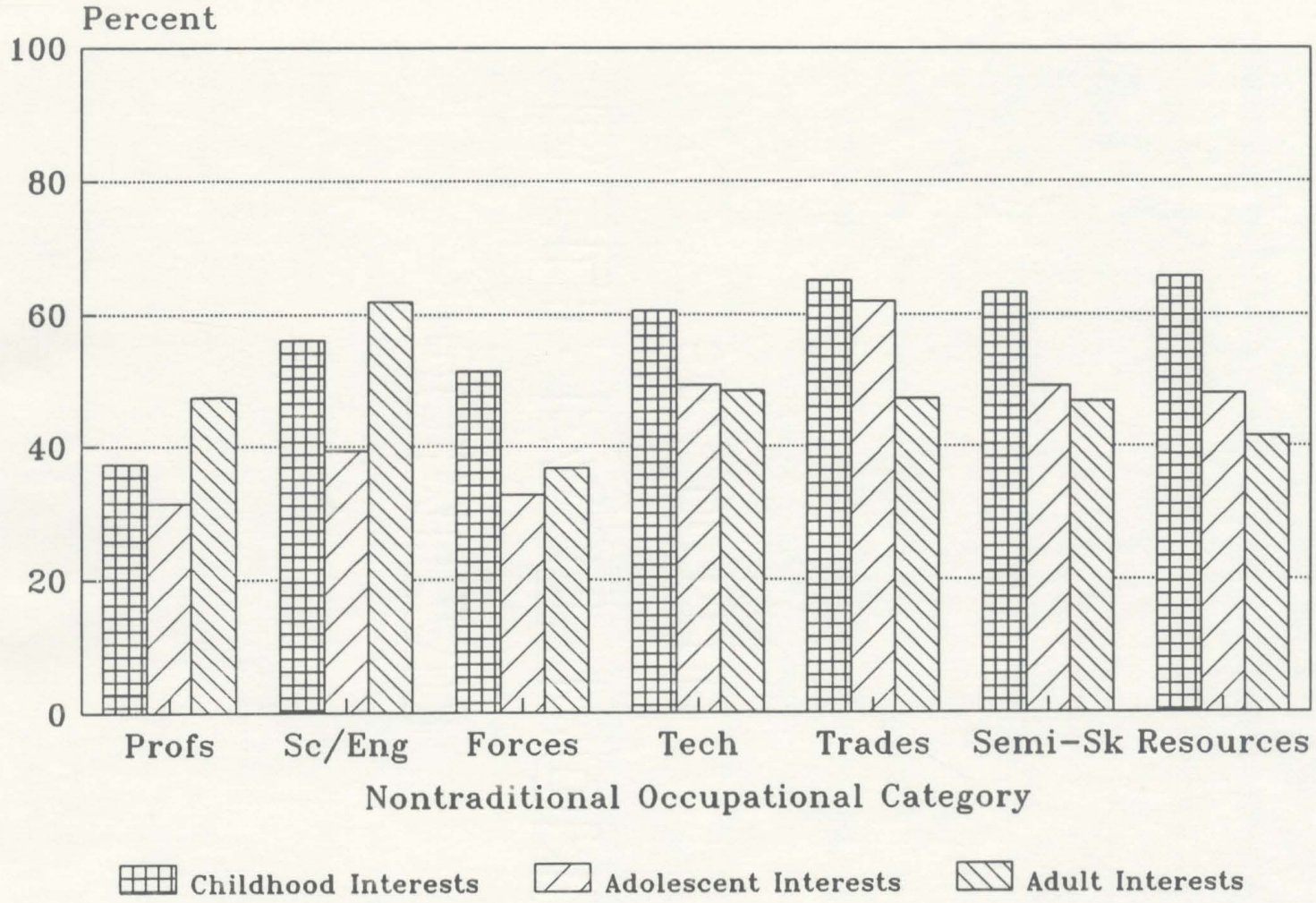


**Figure 2**
**Nontraditional interests at three developmental stages**

exists specifically for the measurement of these values at three developmental levels, several value measurements were studied as models from which broad adaptations were made to accommodate this study (Super, 1930; Manhardt, 1972; and Minnesota Importance Questionnaire, 1975).

As children's values are a reflection of parental values (Super 1967) the subjects perceptions of their parents values were used as the measurement at the childhood stage. The questions relating to level of aspiration deal with the ambition or drive exhibited by the individual towards school or work. The questions on commitment focus on the individual's dedication to an involvement with a particular activity. In childhood and adolescence this work value would be manifested in an early tendency to exclusivity and intense focus on a particular activity. In adulthood commitment would involve a willingness to spend extra time and effort on the job. The questions on risk study the willingness of the parents to let their child take chances, of the adolescent to take responsibility for making their own decisions, and for the adult to take a chance on an uncertain opportunity. This question did not attempt to measure physical risk.

The questionnaire items which applied to this research question were as follows:

Childhood

(1) As a child did your parents:

(a) Encourage you to do better in school? H

(aspiration)

Express satisfaction with your efforts in school? L

(b) Encourage you to stay with an activity once you had started it? H

(commitment)

Encourage you to try many activities? L

(c) Participate in many of your activities or accompany you to them? L

(risk)

Encourage you to pursue activities on your own or with friends? H

(Questionnaire item no. 9)

H = high level of value L = low level of value

Adolescence

(1) As a teenager did you:

(a) Make important decisions on your own? H

(risk)

Ask advice from others, such as parents, teachers or friends on important decisions? L

(b) Spend most of your time at one or two activities? H

(commitment)

Participate in several activities with less involvement? L

(c) Feel you were doing your best

in school or at work? L
(aspiration)

Push yourself harder to improve your standing at school or at work? H

(Questionnaire item no. 17)

Adult

1. (a) Would you take further training to advance your present career? (aspiration)

(b) Would you be prepared to take another job to advance your present career? (risk)

(c) Would you work longer hours to advance your present career? (commitment)

(Questionnaire item nos. 26a, b, and c)

yes = high level of value no = low level of value.

The questions on work values were scored positively if the high level of the value was chosen instead of the low level. The figures given in Table 8 represent the percentage of positive or high level responses indicated by each group.

Statistical data supporting the following conclusions is contained in Table 8.

The chi-square test of differences between the groups was significant.

Level of Aspiration Results by Groups

At the childhood level, 26.4% of professionals reported that they were encouraged by their parents to do better in school. In high school nearly twice as many or 50% pushed themselves harder to improve, whereas at the

Table 8
Percentages of Positive Responses To Questions Concerning
Work Values of Three Developmental Stages

| Questionnaire Items - Total No. | Profs | | | Sc/Eng | | | Forces | | | Tech | | | Trades | | | Semi-Skilled | | | Resources | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T.No | No. | % | T.No | No. | % | T. No |
| 1. Aspiration | | | | | | | | | | | | | | | | | | | | | |
| Childhood | | | | | | | | | | | | | | | | | | | | | |
| Ambition in School Work | 22 | 26.8 | 82 | 14 | 26.1 | 46 | 11 | 52.4 | 21 | 19 | 38.0 | 50 | 9 | 39.1 | 23 | 10 | 37.0 | 27 | 10 | 45.5 | 22 |
| Adolescence | | | | | | | | | | | | | | | | | | | | | |
| Ambition at School and Work | 40 | 50.0 | 80 | 11 | 25.0 | 44 | 5 | 25.0 | 20 | 25 | 51.0 | 49 | 10 | 41.7 | 24 | 11 | 37.9 | 29 | 7 | 31.8 | 22 |
| Adult[a] | | | | | | | | | | | | | | | | | | | | | |
| Ambition at Work | 41 | 49.4 | 83 | 34 | 72.3 | 47 | 21 | 100 | 21 | 485 | 86.5 | 52 | 28 | 83.3 | 24 | 23 | 79.3 | 29 | 15 | 65.2 | 23 |
| 2. Commitment | | | | | | | | | | | | | | | | | | | | | |
| Childhood | | | | | | | | | | | | | | | | | | | | | |
| Perseverance | 46 | 58.2 | 79 | 25 | 55.6 | 45 | 14 | 73.7 | 19 | 18 | 36.7 | 49 | 11 | 50.0 | 22 | 10 | 38.5 | 26 | 9 | 42.9 | 21 |
| Adolescence | | | | | | | | | | | | | | | | | | | | | |
| Choose One or Two | 50 | 61.0 | 82 | 32 | 68.1 | 47 | 20 | 95.2 | 21 | 36 | 69.2 | 52 | 17 | 70.8 | 24 | 6 | 74.1 | 27 | 16 | 69.6 | 23 |
| Adult[a] | | | | | | | | | | | | | | | | | | | | | |
| Work Longer Hours | 40 | 418.2 | 83 | 36 | 76.6 | 47 | 13 | 61.9 | 21 | 37 | 71.2 | 52 | 16 | 66.7 | 24 | 20 | 69.0 | 29 | 18 | 78.3 | 23 |
| 3. Risk | | | | | | | | | | | | | | | | | | | | | |
| Childhood | | | | | | | | | | | | | | | | | | | | | |
| Independence | 39 | 48.1 | 81 | 27 | 60.0 | 45 | 15 | 75.0 | 20 | 30 | 60.0 | 50 | 12 | 54.5 | 16 | 16 | 59.3 | 27 | 15 | 68.2 | 22 |
| Adolescent | | | | | | | | | | | | | | | | | | | | | |
| Decisions | 34 | 41.5 | 82 | 27 | 58.7 | 46 | 10 | 47.6 | 21 | 23 | 45.1 | 51 | 12 | 50.0 | 24 | 12 | 42.9 | 28 | 11 | 47.8 | 23 |
| Adult[a] | | | | | | | | | | | | | | | | | | | | | |
| Change Jobs | 51 | 62.2 | 82 | 39 | 83.0 | 47 | 14 | 66.7 | 21 | 37 | 71.2 | 52 | 19 | 79.2 | 24 | 24 | 82.8 | 29 | 12 | 52.2 | 23 |

[a] Difference between groups significant at the .05 level of confidence

adult level 49.4% were prepared to take further training to advance their careers.

Of the science/engineers 26.1% of their numbers felt pressured by parents in grade school and 25% reported that they felt a need to improve performance in high school. However, 72.3% of this group were prepared to take further training at the adult level.

Of the forces 52.4% stated that their parents encouraged them to do better in grade school, whereas only 25% of this group felt the need to do better in high school. At the adult level a full 100% reported that they were prepared to take further training. This group had the highest score on this variable at both the childhood and adult levels.

The technologists showed a steady rise in level of aspiration with 38% reporting a high level of aspiration in childhood, 51% in adolescence and 86.5% in adulthood. Their results in adolescence were the highest for all groups.

The trades reported a similar pattern of improvement on level of aspiration. Thirty-nine percent of this group reported a high level of aspiration in childhood, 41.7% in adolescence and 83.3% in adulthood.

The semi-skilled reported similarly low levels of aspiration for 37% in childhood and 37.9% in adolescence.

However of this group 79.3% reported a high level of aspiration as adults.

Of the resource group 45.8% reported that their parents encouraged them to do better in school, whereas 31.8% reported that they pushed themselves harder in adolescence. Sixty-five percent of this group reported that they were prepared to take further training at the adult level.

Level of Aspiration - Comparison between Groups

At the childhood stage, the forces, at a moderate level, achieved the highest results. The professionals and science/engineering had the lowest results, while the other four had similar results between these two extremes.

In adolescence the highest level of aspiration was noted by the technologists and the professionals. The lowest levels were recorded by the science/engineers and the forces. The trades, semi-skilled and resource groups were between these two levels.

At the adult level the professionals maintained a similar level to that of adolescence. All other groups rose significantly. The forces claimed that 100% of their group had enough ambition to take more training in order to advance their careers. The technologists were second highest at the adult level. All of the remaining

groups nearly doubled their adolescent scores at the adult level.

Developmental Comparison - See Figure 3

The results for all the groups were lower at both the childhood and adolescent levels than at the adult level for the questions on level of aspiration. However, the percentages in adulthood rose to a much higher level for all groups, except the professionals, for whom the results in adolescence and adulthood were similar.

Commitment - Results by Groups

The professionals reported fairly similar levels of commitment at all three levels. Fifty-eight percent of this group reported that their parents encouraged them to stay with an activity once started in childhood, 61% reported similar values in adolescence and 48.2% reported a high level of commitment to their careers at the adult stage.

Of the science engineering group 55.6% reported a high level of commitment in childhood, 68.1% reported a similar level in adolescence and in adulthood 76.6% reported a high level of career commitment.

Of the forces 73.7% reported a level of commitment in childhood, 95.2% at the adolescent level, and 61.9% reported a high level of commitment at the adult level.

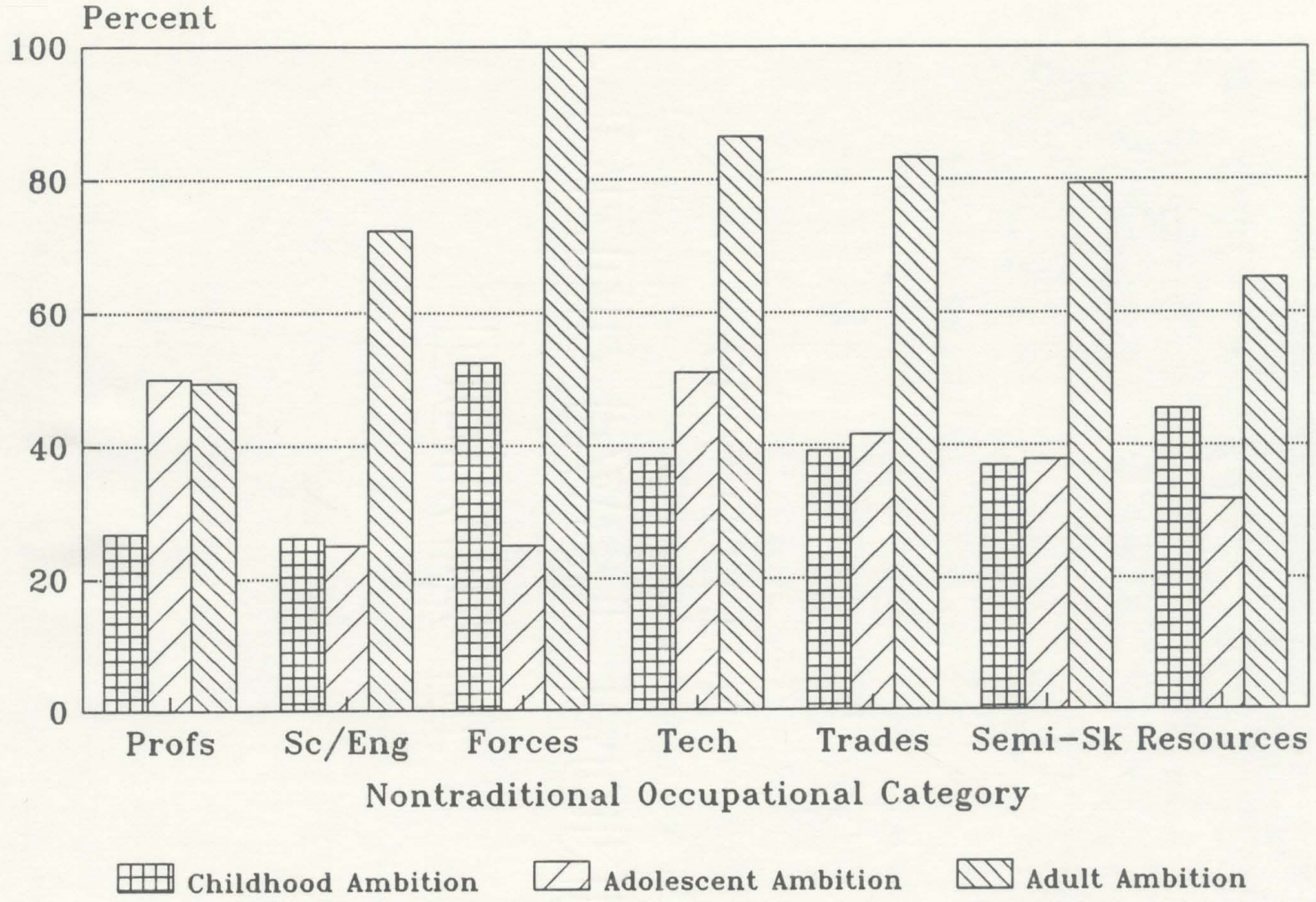


**Figure 3**
**Work values-level of aspiration at three developmental stages**

The technologists showed a gradual progression in results similar to the science/engineering group. Of this group 36.7% reported high commitment in childhood, 69.2% in adolescence and 71.2% as adults.

Fifty percent of the trades rated themselves high in commitment in childhood, 70.8% in adolescence and 66.7% in adulthood.

Of the semi-skilled 38.5% reported high commitment in childhood, 74.1% in adolescence and 69% in adulthood.

The resource group also showed an increase in scoresrelating to commitment at the three different stages, with 42.9% reporting high commitment in childhood, 49.6% in adolescence and 78.3% in adulthood.

Commitment - Comparison between Groups

At the childhood stage, the forces indicated the highest level of commitment, followed by the professionals, science/engineering and the trades groups with more moderate results. The resources, the semi-skilled and the technologists reported the lowest level of commitment at the childhood level.

At the adolescent stage, the forces once again indicated the highest level of commitment, followed in close order by the semi-skilled, the trades, the resources, the technologists, and the science/engineering groups. The professionals reported the lowest level of

commitment in adolescence.

At the adult stage, the groups willing to work the longest hours were the resources and the science/ engineers. Next in ranking order were the technologists and the semi-skilled followed by the trades and the forces. The professionals reported the lowest level of commitment to their careers of all the groups.

Developmental Comparison - See Figure 4

The science/engineers, the technologists, and the resource groups all indicated a pattern of gradual increase in levels of commitment from a low in childhood to more moderate in adolescence, to their highest level of commitment in adulthood. The professionals and the forces, the trades and the semi-skilled indicated a moderate level of commitment in childhood, the highest level in adolescence and a lower level in adulthood.

Risk - Results by Groups

Forty-eight percent of the professionals reported that they were encouraged to pursue activities on their own as children whereas 41.5% reported making important decisions on their own in adolescence and 62.2% would risk taking another job in adulthood. Sixty percent of the science/engineering group reported that they were encouraged towards independence by their parents whereas 58.7% in adolescence and 83% in adulthood reported a high

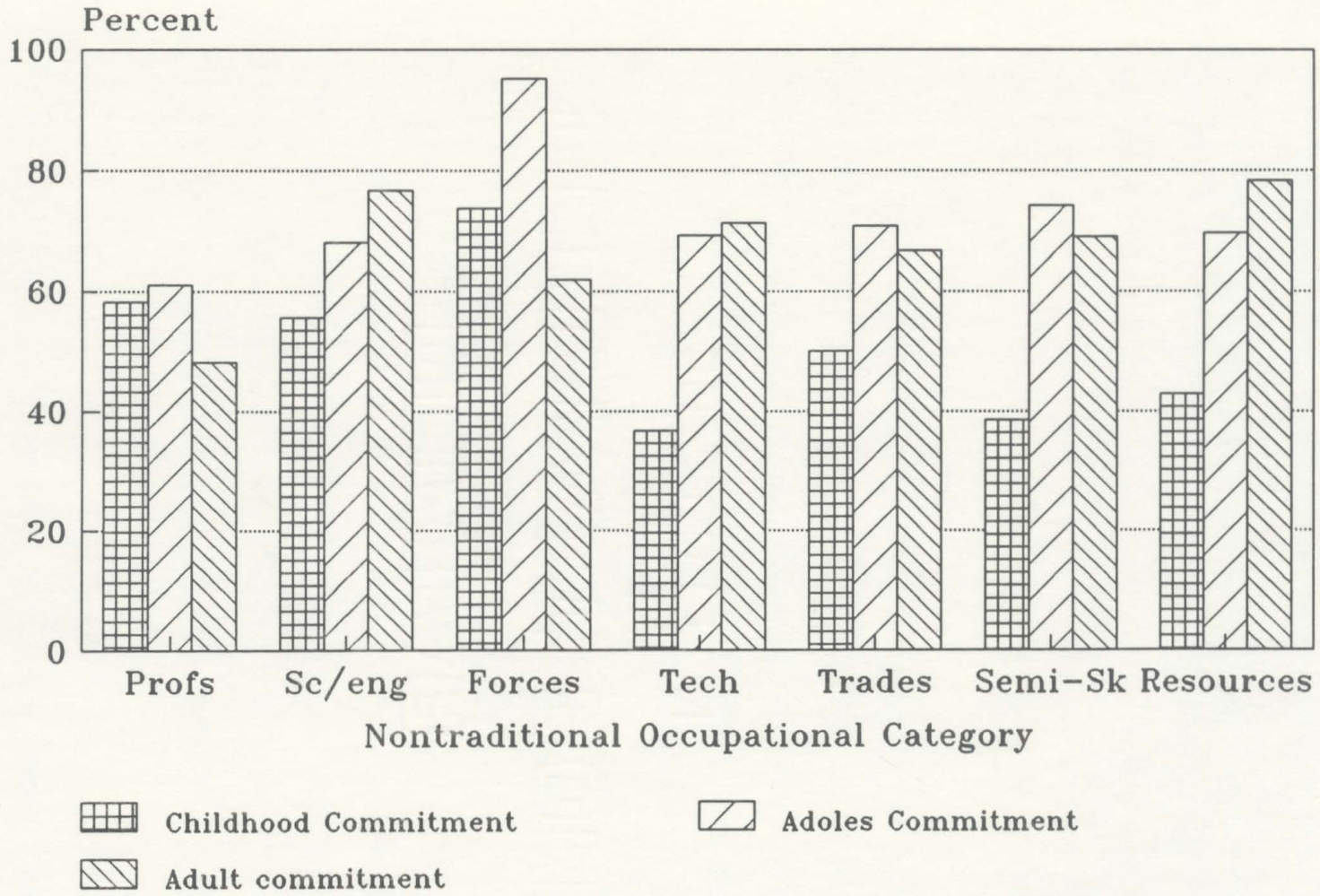


Figure 4
Work values-level of commitment at three developmental stages

degree of risk taking.

Of the forces, 75% reported a high degree of risk taking in childhood, 47.6% reported that they were risk takers in adolescence and 66.7% indicated similar traits in adulthood.

Sixty percent of the technologists reported risk taking in childhood, 45.1% in adolescence and 71.2% in adulthood.

Of the trades group 54.5% reported risk taking in childhood, 50% in adolescence and 79.2% in adulthood.

Fifty-nine percent of the semi-skilled reported that they were childhood risk takers, 42.9% in adolescence and 82.8% in adulthood reported high risk taking.

Of the resources 68.2% reported childhood risk taking, 47.8% reported adolescent risk taking and 52.2% reported risk taking as adults.

Comparison between Groups

The highest score on this question at the childhood level was noted by the forces, followed by the resource group, science/engineering and technology. Close behind them came semi-skilled, trades and, lowest of all, the professionals.

At the adolescent level the science/engineers ranked highest, followed in ranking order by trades, resources, the forces, technologists and the semi-skilled. Lowest

on this variable also were the professionals.

At the adult level the science/engineers once more held the highest rank, shared almost equally with the semi-skilled. Trades was third highest followed by technology, the forces, and the professionals. The lowest group at the adult level was the resource group who, together with the forces, rated their lowest scores on risk at the adult stage.

Development Comparison - See Figure 5

A similar pattern of results from the questions on risk was displayed by all groups. The lowest scores for all groups were at the adolescent stage pertaining to their willingness to make important decisions on their own. The second highest level of risk was recorded at the childhood stage by all groups except the forces and the resource groups who rated themselves highest at this stage. The childhood question concerned the teaching of independence. The highest scores were attained by all other groups at the adult stage which measured risk in terms of willingness to change jobs for advancement.

Research question 4: What, if any, are the similarities or differences, in the influence of family based factors, at different levels of development, or as background factors on the nontraditional occupational groups included in this study?

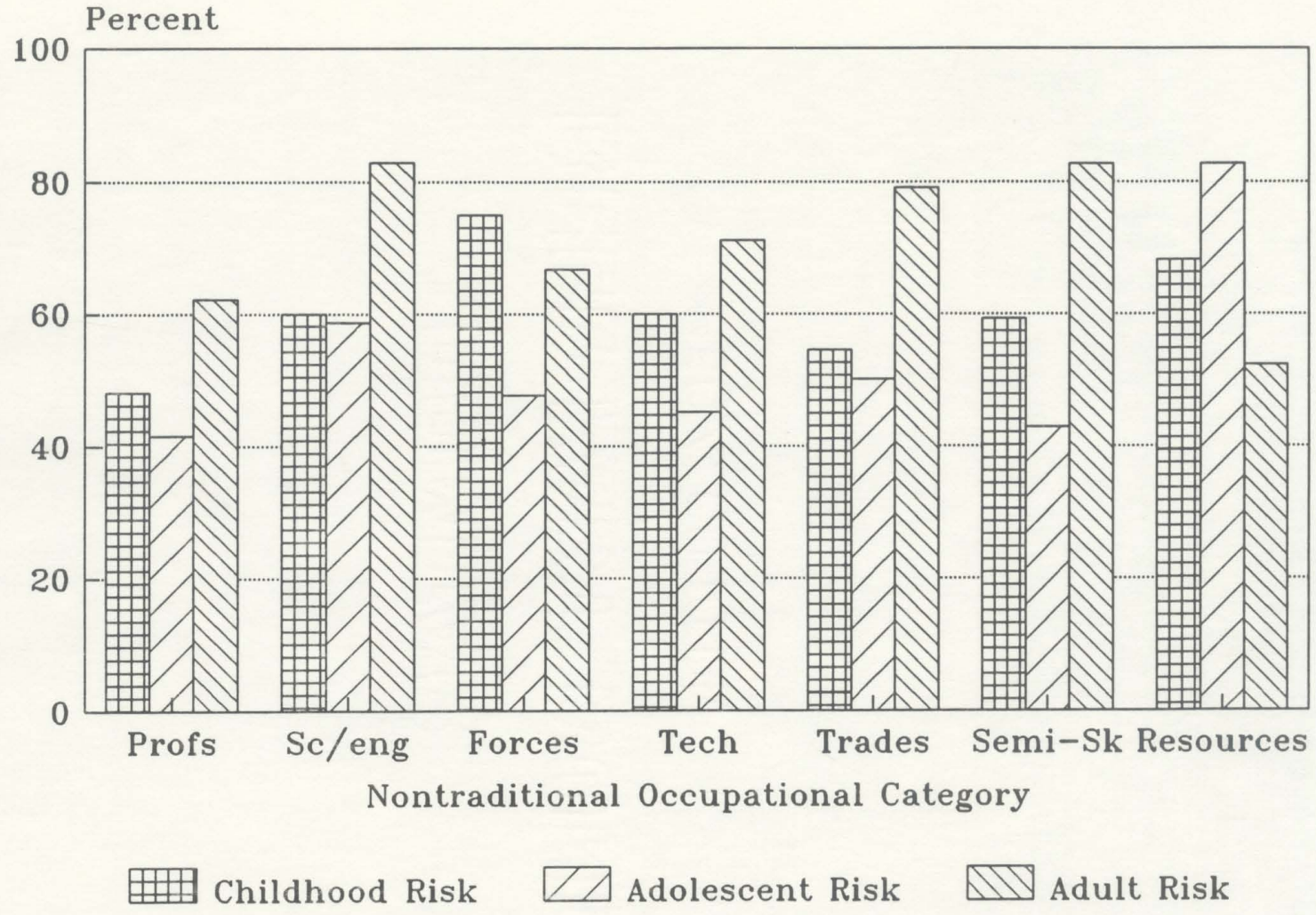


**Figure 5**
**Work values-level of risk taking at three developmental stages**

As discussed in the review of the literature on family factors it was shown that a high level of parental support and interest in their daughters activities was a determining factor in female nontraditional career choice.

The questionnaire items that applied to this research question were as follows:

Childhood

(1) How would you rate your parents' interest in your activities as a child in school and outside of school?

(Questionnaire item no. 12b)

Adolescence

(1) How would you rate your parents' interest in your activities during your teen years in school, sports, hobbies, etc?

(Questionnaire item no. 18a)

Adult

(1) How would you rate your parents approval of your choice of a nontraditional career?

(Questionnaire item no. 27)

Family background

(1) What was the highest level of education completed by your father and your mother?

(Questionnaire item no. 5a)

(2) Name and describe briefly your father's and mother's

main occupation during your growing up years?

(Questionnaire item nos. 6a and b)

(3) How successful would you rate your father and/or mother in their paid occupations?

(Questionnaire item no. 6c)

In the analysis of the questions on mothers' and fathers' interest at each developmental level, categories one and two were combined to produce the statistic reported as an above average rating on these factors.

Statistical data for the following conclusions are provided in Tables 9, 10, and 11.

The chi-square test of differences between the groups was significant.

## Results by Groups

### Mothers' interest

Of the professionals 79.5% reported a high rate of interest by their mothers in their childhood activities, a similar rate of interest in their teens was reported by 78.3% of the group and the highest rate of maternal interest was in adulthood, in that 93.9% of the mothers were reported as having above average support for their daughters' nontraditional occupation.

The science/engineers followed a similar pattern in the results of the questions concerning their mothers' interest in their activities. In childhood, 80.8%

Table 9
Percentages of Above Responses To Questions
Concerning Parental Interest At Three Developmental Stages

| Questionnaire Items | Profs | | | Sc/Eng | | | Forces | | | Tech | | | Trades | | | Semi-Skilled | | | Resources | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T.No | No. | % | T.No | No. | % | T. No |
| Fathers' Interest In Activities | | | | | | | | | | | | | | | | | | | | | |
| In Childhood[a] | 59 | 72.8 | 81 | 26 | 57.8 | 45 | 8 | 38.1 | 21 | 20 | 40.8 | 49 | 9 | 40.9 | 22 | 10 | 37.0 | 27 | 6 | 26.0 | 23 |
| In Adolescence[a] | 59 | 75.7 | 78 | 22 | 48.9 | 45 | 9 | 42.8 | 21 | 16 | 34.0 | 47 | 7 | 35.0 | 20 | 8 | 32.0 | 25 | 5 | 22.7 | 22 |
| In Adulthood[a] | 72 | 96.0 | 75 | 40 | 90.9 | 44 | 15 | 75.0 | 20 | 38 | 84.4 | 45 | 13 | 68.4 | 19 | 9 | 45.0 | 20 | 7 | 36.1 | 19 |
| Mothers' Interest In Activities | | | | | | | | | | | | | | | | | | | | | |
| In Childhood[a] | 66 | 79.5 | 83 | 38 | 80.8 | 47 | 12 | 57.1 | 21 | 39 | 75.0 | 52 | 17 | 70.8 | 24 | 20 | 69.0 | 29 | 9 | 40.9 | 22 |
| In Adolescence[a] | 65 | 78.3 | 83 | 35 | 76.1 | 46 | 14 | 66.7 | 21 | 29 | 56.9 | 51 | 14 | 58.3 | 24 | 15 | 51.7 | 29 | 6 | 27.3 | 22 |
| In Adulthood[a] | 72 | 93.9 | 82 | 39 | 88.6 | 44 | 13 | 65.2 | 20 | 41 | 83.6 | 49 | 17 | 73.9 | 23 | 10 | 37.0 | 27 | 7 | 33.3 | 21 |

[a] Difference between groups significant at the .05 level of confidence

Table 10
Level Of Parent's Education

| Questionnaire Items | Profs | | | Sc/Eng | | | Forces | | | Tech | | | Trades | | | Semi-Skilled | | | Resources | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T.No | No. | % | T.No | No. | % | T. No |
| Mothers[a] | | | | | | | | | | | | | | | | | | | | | |
| Grade School | 5 | 6.1 | 82 | 4 | 8.5 | 47 | 4 | 19.0 | 21 | 11 | 23.4 | 47 | 7 | 33.3 | 21 | 15 | 53.5 | 28 | 11 | 52.4 | 21 |
| High School | 29 | 35.4 | 82 | 12 | 25.5 | 47 | 7 | 33.3 | 21 | 19 | 40.4 | 47 | 9 | 42.8 | 21 | 9 | 32.2 | 28 | 9 | 42.8 | |
| Vocational-Others | 26 | 31.8 | 82 | 13 | 27.6 | 47 | 8 | 38.1 | 21 | 12 | 25.5 | 47 | 2 | 9.5 | 21 | 2 | 7.2 | 28 | 1 | 4.8 | |
| Some University | 13 | 14.6 | 82 | 6 | 12.8 | 47 | 0 | 0.0 | 21 | 3 | 6.4 | 47 | 1 | 4.8 | 21 | 1 | 3.6 | 28 | 0 | 0.0 | |
| University Graduate | 8 | 9.8 | 82 | 10 | 21.3 | 47 | 2 | 9.5 | 21 | 1 | 2.1 | 47 | 1 | 4.8 | 21 | 0 | 0.0 | 28 | 0 | 0.0 | |
| Advanced Degree | 2 | 2.4 | 82 | 2 | 4.3 | 47 | 0 | 0.0 | 21 | 1 | 2.1 | 47 | 1 | 4.8 | 21 | 1 | 3.6 | 28 | 0 | 0.0 | |
| Fathers[a] | | | | | | | | | | | | | | | | | | | | | |
| Grade School | 14 | 17.1 | 82 | 2 | 4.3 | 46 | 3 | 15.0 | 20 | 12 | 26.1 | 46 | 8 | 42.1 | 19 | 13 | 50.0 | 26 | 14 | 70.0 | 20 |
| High School | 15 | 18.3 | 82 | 13 | 28.3 | 46 | 6 | 30.0 | 20 | 19 | 41.3 | 46 | 6 | 31.6 | 19 | 12 | 46.3 | | 5 | 25.0 | 20 |
| Vocational-Others | 20 | 24.4 | 82 | 10 | 21.7 | 46 | 8 | 40.0 | 20 | 8 | 17.4 | 46 | 3 | 15.8 | 19 | 1 | 3.8 | | 1 | 5.0 | 20 |
| Some University | 8 | 9.8 | 82 | 6 | 13.0 | 46 | 1 | 5.0 | 20 | 1 | 2.2 | 46 | 0 | 0.0 | 19 | 0 | 0.0 | | 0 | 0.0 | 20 |
| University Graduate | 9 | 11.0 | 82 | 10 | 21.7 | 46 | 1 | 5.0 | 20 | 5 | 10.9 | 46 | 1 | 5.3 | 19 | 0 | 0.0 | | 0 | 0.0 | 20 |
| Advanced Degree | 16 | 19.0 | 82 | 5 | 10.9 | 46 | 1 | 5.0 | 20 | 1 | 2.2 | 46 | 1 | 5.3 | 19 | 0 | 0.0 | | 0 | 0.0 | 20 |

[a] Differences between groups significant at the .05 level of confidence

Table 11
Percentages of Responses To Questinaries Items Concerning
Fathers' And Mothers' Occupational Categories, Mothers'
Traditional or Nontraditional Classification And Perceived Success of Parents

| Questionnaire Items | Profs | | | Sc/Eng | | | Forces | | | Tech | | | Trades | | | Semi-Skilled | | | Resources | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T.No | No. | % | T.No | No. | % | T. No |
| Fathers' Occupation [a] | | | | | | | | | | | | | | | | | | | | | |
| Professional | 28 | 33.7 | 83 | 12 | 26.7 | 45 | 2 | 9.5 | 21 | 10 | 20.4 | 49 | 1 | 4.8 | 21 | 0 | 0.0 | 27 | 2 | 9.1 | 22 |
| Semi-professional | 13 | 15.7 | 83 | 8 | 17.8 | 45 | 2 | 9.5 | 21 | 0 | 0.0 | 49 | 2 | 9.5 | 21 | 1 | 3.7 | 27 | 0 | 0.0 | 22 |
| Technical-Tradess | 17 | 20.5 | 83 | 12 | 26.7 | 45 | 9 | 42.9 | 21 | 14 | 28.6 | 49 | 1 | 4.8 | 21 | 7 | 25.9 | 27 | 19 | 86.4 | 22 |
| Semi-Skilled | 25 | 30.1 | 83 | 13 | 28.9 | 45 | 8 | 38.1 | 21 | 25 | 51.0 | 49 | 17 | 81.0 | 21 | 19 | 70.4 | 27 | 19 | 86.4 | 22 |
| Mothers' Occupation [a] | | | | | | | | | | | | | | | | | | | | | |
| Professional | 3 | 3.7 | 81 | 2 | 4.3 | 47 | 0 | 0.0 | 21 | 1 | 1.9 | 52 | 0 | 0.0 | 23 | 1 | 3.4 | 29 | 1 | 4.3 | 23 |
| Semi-Professional | 14 | 17.3 | 81 | 13 | 27.7 | 47 | 0 | 0.0 | 21 | 3 | 5.8 | 52 | 2 | 8.7 | 23 | 1 | 3.4 | 29 | 1 | 4.3 | 23 |
| Technical-Trades | 8 | 9.9 | 81 | 3 | 6.4 | 47 | 3 | 14.3 | 21 | 5 | 9.6 | 52 | 0 | 0.0 | 23 | 1 | 3.4 | 29 | 0 | 0.0 | 20 |
| Semi-Skilled | 9 | 11.1 | 81 | 8 | 17.0 | 47 | 4 | 19.0 | 21 | 7 | 13.5 | 52 | 11 | 47.8 | 23 | 12 | 41.4 | 29 | 7 | 30.4 | 23 |
| Housewife | 47 | 58.0 | 81 | 21 | 44.7 | 47 | 14 | 66.7 | 21 | 36 | 69.2 | 52 | 10 | 43.5 | 23 | 14 | 48.3 | 29 | 14 | 60.9 | 23 |
| Employed | 34 | 42.0 | 81 | 26 | 55.5 | 47 | 7 | 33.3 | | 16 | 30.8 | 52 | 13 | 56.5 | 23 | 15 | 51.6 | 29 | 9 | 29.0 | 23 |
| Traditional | 79 | 98.8 | 80 | 46 | 100 | 46 | 20 | 95.2 | 21 | 51 | 98.1 | 52 | 21 | 95.5 | 22 | 26 | 89.7 | 29 | 21 | 91.3 | 23 |
| Nontraditional | 1 | 1.3 | 80 | 0 | 0.0 | 0 | 1 | 4.8 | 21 | 1 | 1.9 | 52 | 1 | 4.5 | 22 | 3 | 10.3 | 29 | 2 | 8.7 | 23 |
| Perceived career success of parents | | | | | | | | | | | | | | | | | | | | | |
| Above Average Fathers | 65 | 79.3 | 82 | 36 | 80.0 | 45 | 13 | 61.9 | 21 | 32 | 64.0 | 50 | 12 | 54.5 | 22 | 14 | 53.8 | 26 | 12 | 57.1 | 21 |
| Above Average Mothers | 36 | 78.3 | 46 | 20 | 74.0 | 27 | 16 | 60.0 | 10 | 15 | 53.6 | 28 | 9 | 60.0 | 15 | 11 | 61.1 | 18 | 8 | 50.0 | 16 |

[a] Differences between groups significant at the .05 level of confidence

reported that their mothers had above average interest in their activities, in adolescence 76.1% indicated similar interest levels and in adulthood 88.6% of them expressed a high rate of support by mothers for their nontraditional careers.

Of the forces 57.1% reported a high rate of maternal interest in childhood, 66.7% in adolescence, 65% in adulthood.

The trades and technology followed similar patterns on this item. Seventy-five percent of the technologists and 70% of the trades reported a high level of maternal interest in childhood. In adolescence 56.9% of the technologists and 58.3% of the trades reported high levels of maternal interest. In adulthood, 83.6% of the technologists and 73.9% of the trades indicated a high degree of maternal interest in their nontraditional careers.

Of the semi-skilled group 69% noted that their mothers showed above average interest in them in childhood, 51.7% in adolescence and 37% as expressing any great amount of interest in their adult choice of occupation.

The group in primary resources felt that their mothers had little interest in their activities throughout the developmental period. Forty percent of

this group reported a high level of maternal interest in their childhood, 27.3% in their adolescence and 33.3% in their adult career choice.

Fathers' interest

The results of the question pertaining to their fathers' interest were quite similar to the mothers' for the professionals of this group, 72.8% reported high paternal interest in their childhood, 75.7% in their adolescence and 96% in their adult choice of occupation.

Of the science/engineers 57.8% reported high paternal interest in their childhood, 48.9% in their adolescence and 90.7% in their adulthood.

The forces reported that a very low percentage of their fathers had any great amount of interest in them with 38.1% reporting high paternal interest in childhood and 42.8% in adolescence. Their fathers' interest rose considerably in adulthood as reported by 75% of the group.

The technology and trades groups followed similar patterns in their scores on fathers' interest, as they did on mothers' interest. Forty-one percent of the technology and trades groups reported high paternal interest in childhood. In adolescence 34% of technologists and 35% of trades reported similar results. In adulthood 84.4% of technologists and 68.4% of trades

reported high paternal interest.

The semi-skilled and resource groups also followed similar patterns in their rating of their fathers' interest in their activities. Thirty-seven percent of semi-skilled and 26% of resources reported highly interested fathers in childhood, 32% of semi-skilled and 22.7% of resources in adolescence and 45% of semi-skilled and 36.9% of resources reported high paternal interest in adulthood.

## Comparison between Groups

### Childhood

The interest of the mothers in their daughters' childhood activities ranked by groups was as follows. The science/engineers were highest, followed very closely by the professionals. Next in rank were the technologists, the trades and the semi-skilled groups. The forces ranked sixth while the resources ranked lowest of all on their mothers' childhood interest.

In terms of the fathers' interest in their childhood activities, the professionals and science/engineers ranked highest followed by the technologists, forces and trades. The lowest ranking in fathers' interest were the semi-skilled and resources groups.

### Adolescence

At the adolescent level the ranking of fathers'

interest scores and mothers' interest scores was quite similar. The professionals ranked highest with mothers' interest ranking slightly higher than fathers. For the following groups the results for the fathers' interest were substantially lower than those for the mothers'. These groups in terms of rank were as follows: science/ engineering, forces, technology, trades and semi-skilled. The resources group indicated the lowest level of fathers' and mothers' interest in adolescence.

Adult

The ranking for fathers' and mothers' interest in adulthood was as follows. The professionals were highest for fathers and mothers, followed by science/engineering second and technology third on both items. Trades was fourth for mothers and fifth for fathers while forces were fifth for mothers and fourth for fathers. Semi-skilled ranked sixth and resources seventh for both fathers' and mothers' interest scores at the adult level.

Developmental comparison - see Figures 6 and 7

Fathers' interest was similar for most groups, indicating moderate interest in childhood, lower interest in adolescence and the highest rate of paternal interest was reported at the adult level for all groups.

A pattern of maternal interest was indicated by the professionals, the science/engineers, the technologists

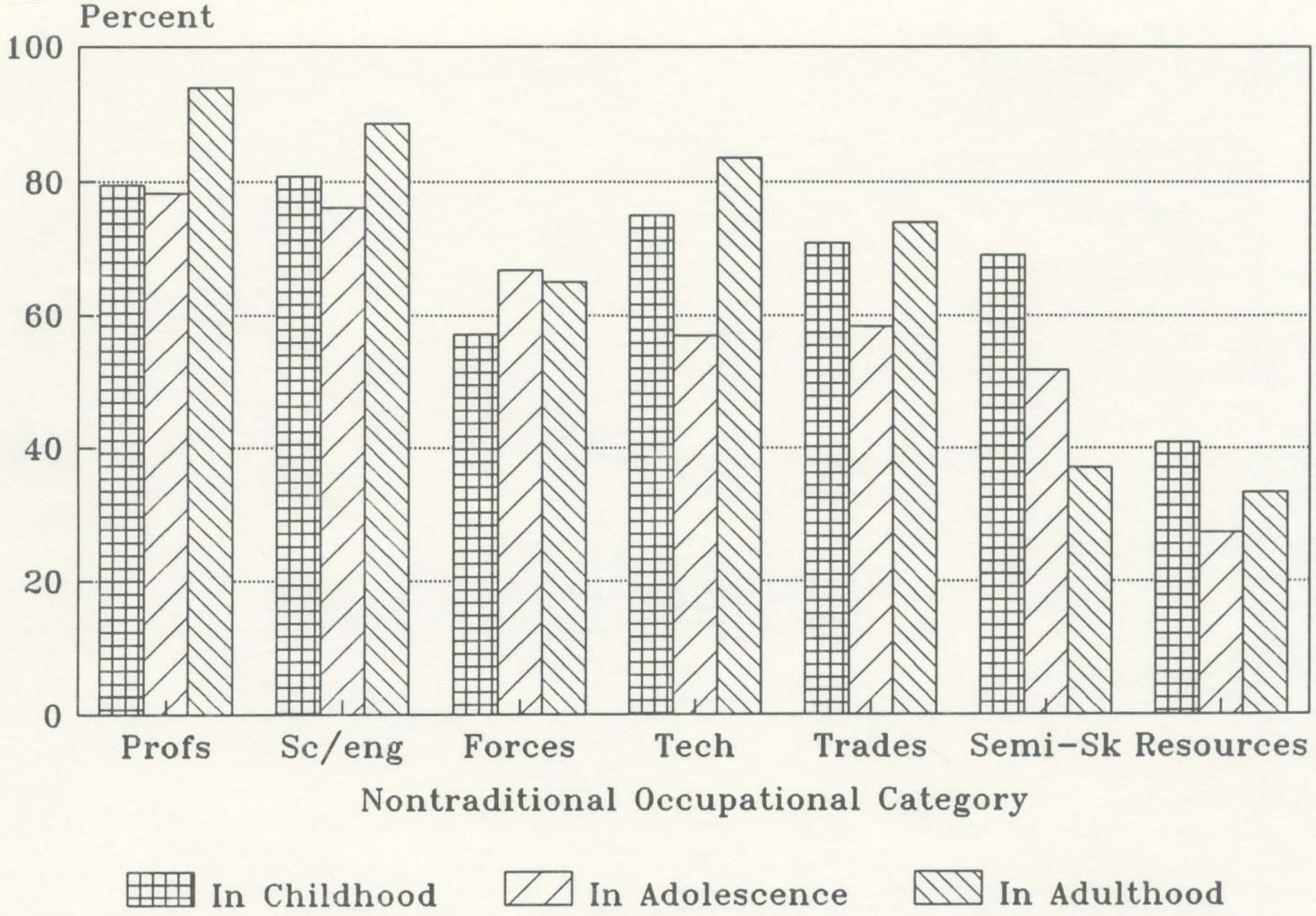


**Figure 6**
**Family factors: mother's interest at three developmental levels**

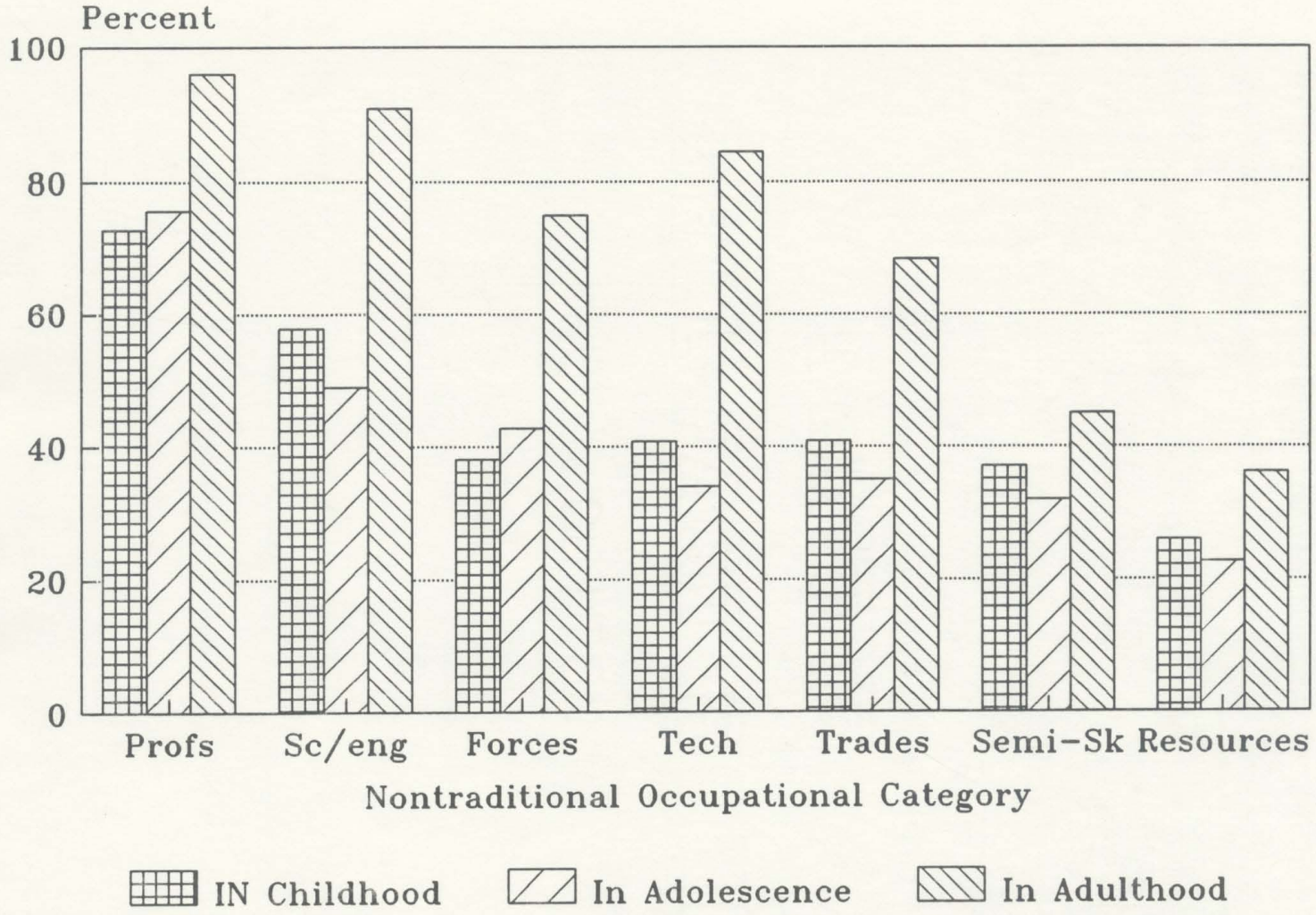


**Figure 7**
**Family factors: father's interest at three developmental levels**

and the trades similar to that of their fathers' interest. The semi-skilled and resources rated their mothers' interest highest in childhood and markedly lower in adulthood. The forces indicated that the level of their mothers' interest was almost the same in adolescence as in adulthood.

Parents' education - see Figures 8 and 9

The level of education of the fathers of all the groups was found to be slightly higher than that of the mothers for all groups, except the semi-skilled, where the mothers' level of education was slightly higher than that of the fathers'. In all cases the ranking of the level of education of fathers and mothers was the same. The science/engineering group had the most highly educated parents among all the groups followed by the parents of the professionals in second place. The parents of the technology group ranked third and the parents of the trades group ranked fourth in levels of education. The parents of the forces, the semi-skilled and the resource groups ranked fifth, sixth and seventh on these questions concerning level of education.

Fathers' Occupation

The professionals reported that the majority of their fathers were also in the professions, followed closely in numbers by those in semi-skilled occupations.

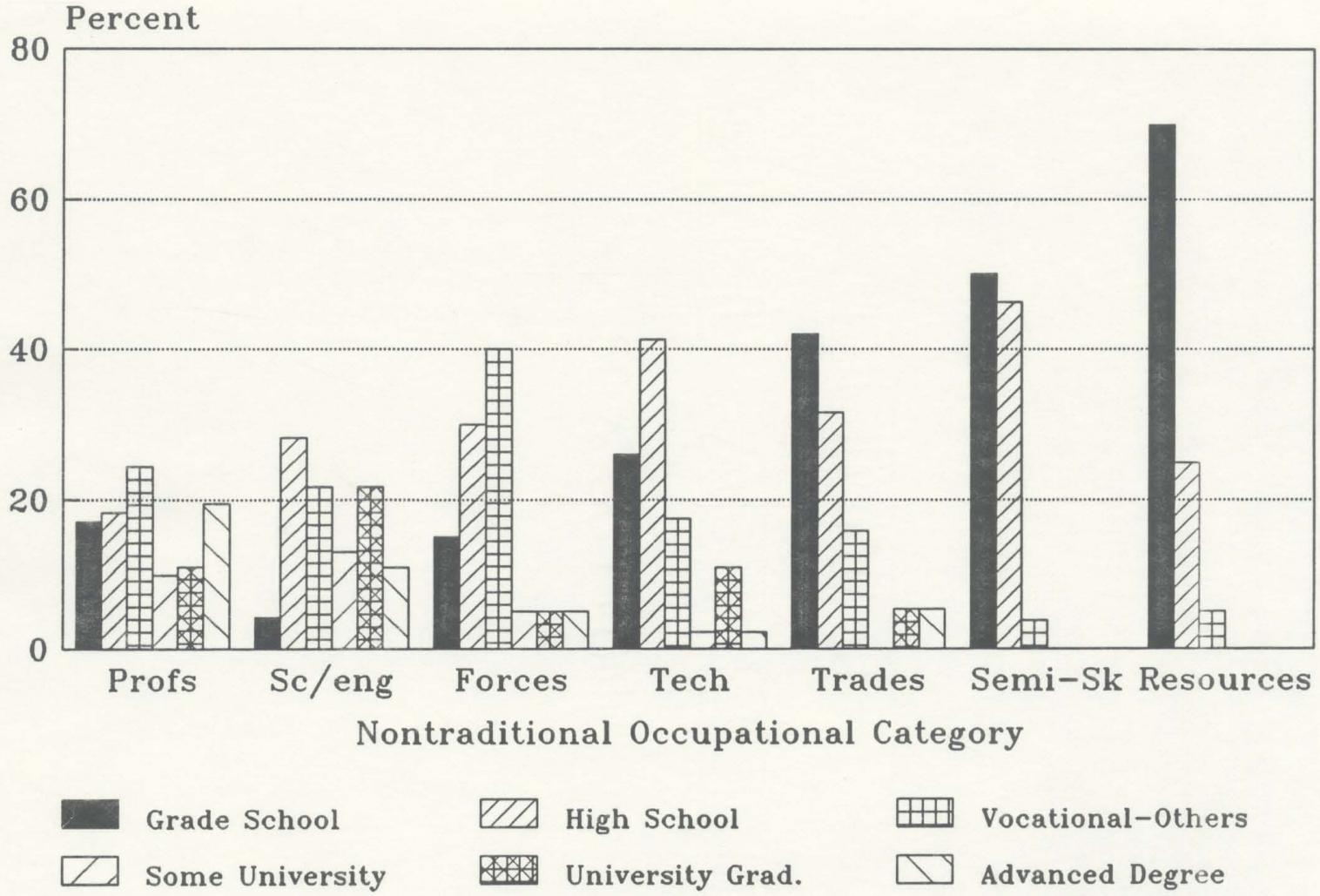


Figure 8

Father's education: percentage of highest level completed

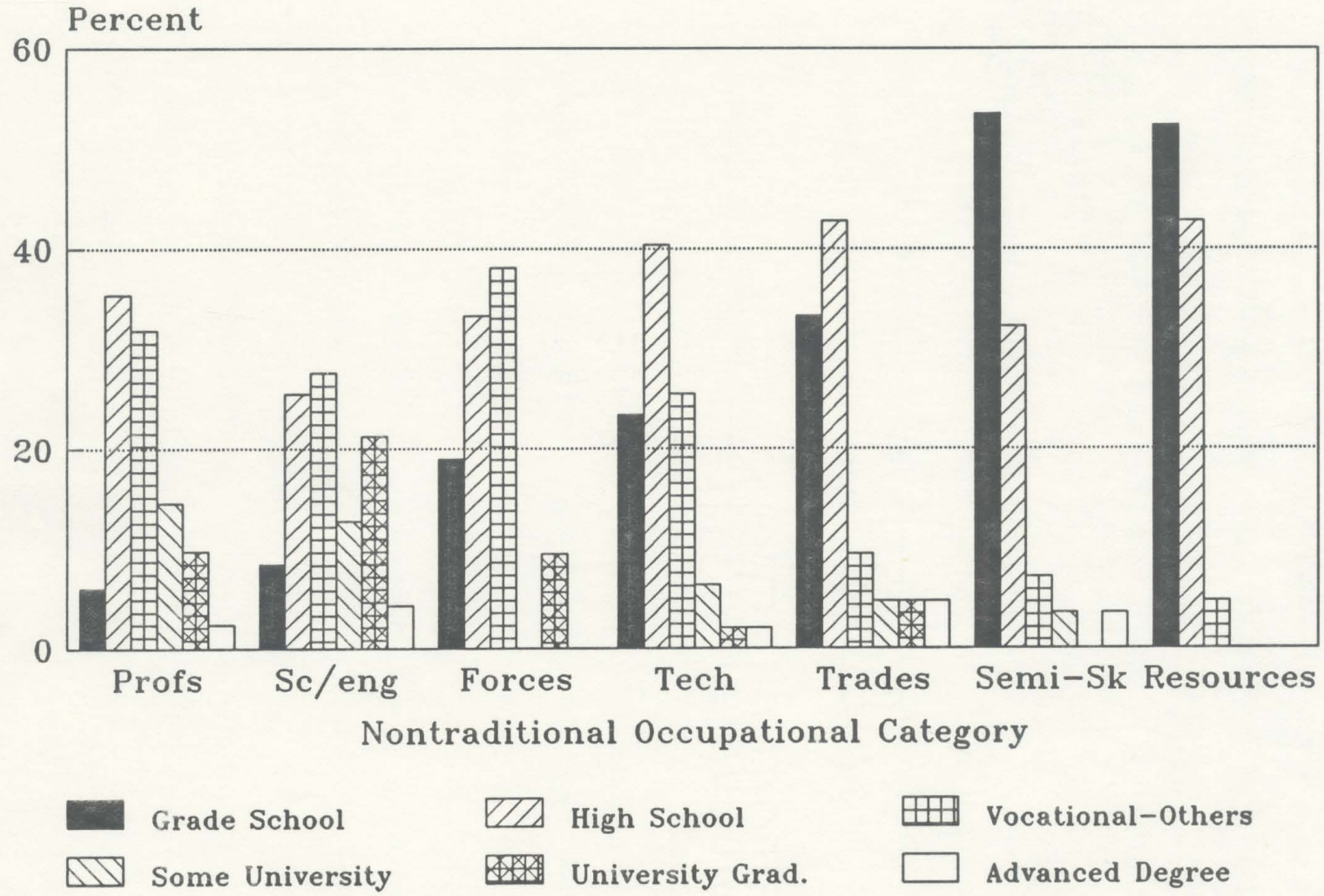


Figure 9

Mother's education: percentage of highest level completed

The greatest percentage of fathers of the science/ engineers group were employed in semi-skilled occupations followed very closely by equal numbers in the professions and technology/trades categories. The majority of the fathers of the forces worked in trades and technology, followed by a large percentage in semi-skilled occupations. Approximately half of the fathers of the technology group were categorized as semi-skilled workers while nearly thirty percent were in the technology/trades category. By far the greatest majority of the fathers of the subjects in the trades, semi-skilled and resources groups were employed in semi-skilled occupations.

Mothers' occupation

The majority of the mothers of all groups were classified as housewives, with technology and forces reporting the highest percentages in that category and trades and science/engineering the lowest. The professionals and science/engineering had a few mothers in the professions. They also had the highest percentages of semi-professional mothers. The forces had the highest percentage of mothers in technology and trades followed by the mothers of the professionals and the technologists.

Almost half of the mothers of the trades groups were engaged in semi-skilled occupations whereas the semi-

skilled group reported approximately forty percent of their mothers in semi-skilled work. The resources described thirty percent of their mothers as semi-skilled workers.

Very few of the mothers of the total sample worked at nontraditional occupations. Only 3.3% or nine individuals out of a possible two hundred and seventy-three belonged in this category. The semi-skilled group had the highest percentage of nontraditional mothers followed by the resource group. All other groups had one nontraditional mother, while the forces had none.

Fathers' success

In terms of how successful they rated their father's careers, the science/engineers and professionals gave their fathers the highest rankings. The women in technology and the forces rated their fathers somewhat less successful, while the fathers of the resources, trades and semi-skilled groups in descending order of rank, were seen as even less successful by their daughters.

Mothers' success

The mothers of the professionals were rated highest in terms of career success followed closely by the mothers of the science/engineering group. The semi-skilled, forces and trades rated their mothers' career

success somewhat lower while the technologists and resource groups rated their mothers' lowest of all.

Comparison between Groups - See Figure 10

In comparing the perceived career success of both fathers and mothers there were some interesting differences. The science/engineering, technology and resource groups all rated their father's career success somewhat higher than that of the mother's. The professionals and the forces rated both parents almost equally successful in their careers, while the semi-skilled and trades women rated their mother's career success somewhat higher than that of their father's.

Research question 5(a): What, if any, are the similarities or differences in the development of educational abilities, preferences, and background factors, between the nontraditional groups included in this study?

A high level of ability in math and science was shown by the review of the literature to be a determining factor in the choice of many female nontraditional occupations. A lack of math/science ability may therefore account for the low representation of females in many areas of science and technology.

The questionnaire items that applied to this research question are as follows:

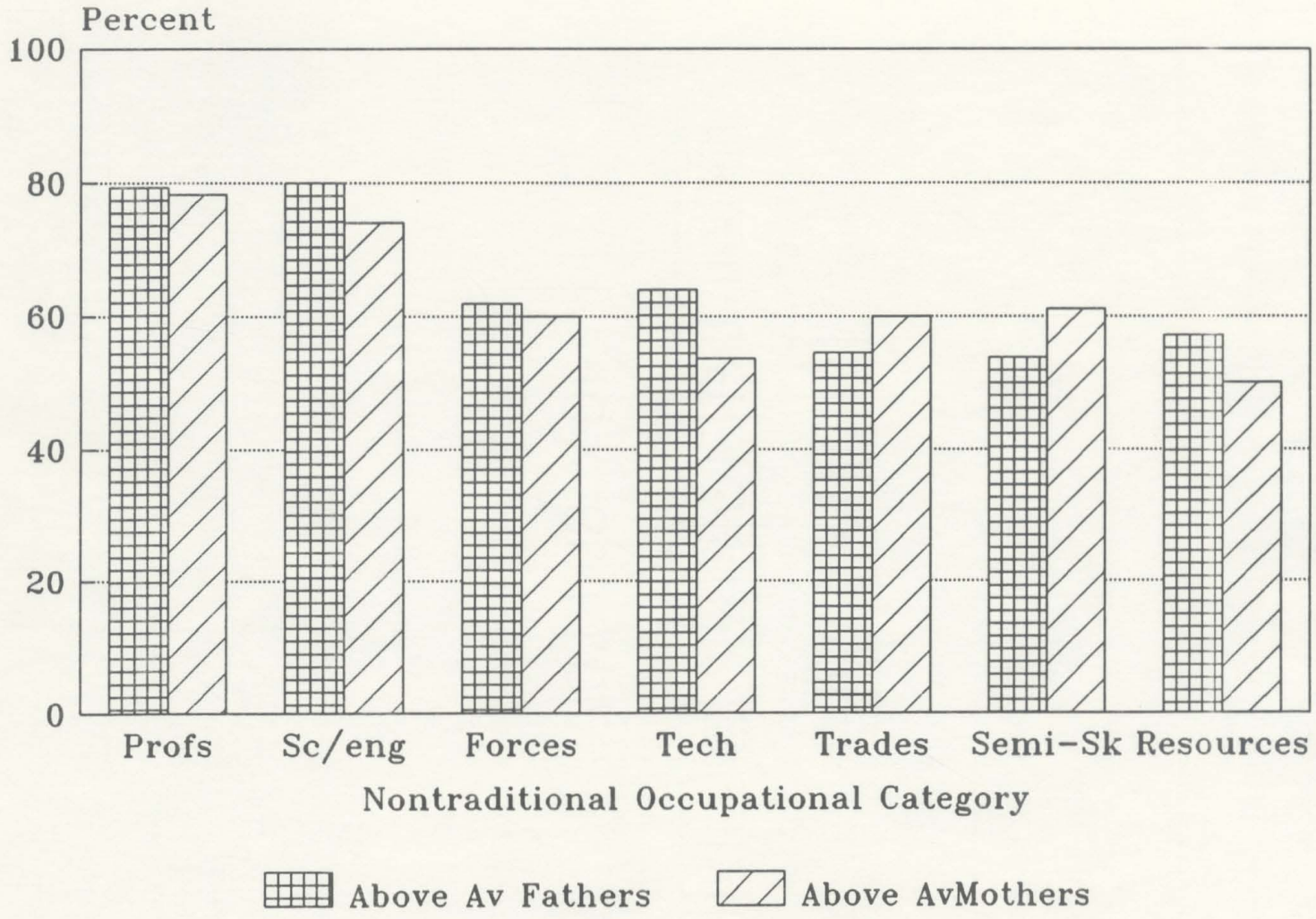


**Figure 10**
**Perceived career success of parents**

Childhood

(1) What were the two subjects you did best in at the grade school level?

(Questionnaire item no. 11b)

Adolescence

(1) What were the two subjects you did best in at the high school level?

(Questionnaire item no. 19b)

Adult

(1) Were there some school subjects you wish you had taken in preparation for your nontraditional career?

(Questionnaire item no. 31b)

Educational background

(1) What was the highest level of education that you completed?

(2) Did you attend a single sex school for all or most of your school years?

(Questionnaire item nos. 5a and b)

In the analysis of the questions on the school subjects the subjects did best in, at the childhood and adolescent levels the first choice made was the only one that was used. At all three levels, the responses were classified into (a) math or science or (b) liberal arts and others. The statistics reported represent the percentage of math/science subjects chosen, out of the

total choices made by each group.

Statistical data supporting the following conclusions are provided in Table 12.

The chi-square test of differences between the groups was significant.

Results by Groups

At the childhood level, 80% of the science/ engineering group reported that they made their highest marks in Math and Science, professionals were groups reported that 53% and 52% of their groups respectively made high marks in math and science while only 37% of the semi-skilled and 28.6% of the forces reported high scores in math and science at the grade school level.

At the adolescent level, the percentage of students scoring their best marks in Math and Science was almost identical to childhood, for the science/engineering 80%, for the professionals 71.8% and for the resource groups 61.1%. Technology was a little higher with 60% of the group reporting high marks in math and science, and trades were substantially higher with 78.9% of the group reporting high marks in these subjects. Of the semi-skilled 42.9% and of the forces 35% reported similar results showing a slight increase in math/science proficiency from childhood.

Table 12
Percentages of Responses to Questionnaire Items
Concerning Educational Background of Respondents

| Questionnaire Items | Profs | | | Sc/Eng | | | Forces | | | Tech | | | Trades | | | Semi-Skilled | | | Resources | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T. No | No | % | T.No | No | % | T.No | No. | % | T. No |
| Educational Level | | | | | | | | | | | | | | | | | | | | | |
| Grade School | 0 | 0.0 | 83 | 0 | 0.0 | 46 | 0 | 0.0 | 21 | 0 | 0.0 | 52 | 0 | 0.0 | 23 | 2 | 6.9 | 29 | 2 | 8.6 | 23 |
| High School | 0 | 0.0 | 83 | 0 | 0.0 | 46 | 1 | 4.8 | 21 | 2 | 3.8 | 52 | 0 | 0.0 | 23 | 6 | 20.6 | 29 | 9 | 39.1 | 23 |
| Vocational-Others | 0 | 0.0 | 83 | 0 | 0.0 | 46 | 4 | 19.1 | 21 | 37 | 71.1 | 52 | 20 | 87.0 | 23 | 18 | 62.1 | 29 | 9 | 39.1 | 23 |
| Some University | 1 | 1.2 | 83 | 1 | 2.2 | 46 | 12 | 57.1 | 21 | 13 | 25.0 | 52 | 3 | 13.0 | 23 | 3 | 10.3 | 29 | 2 | 8.7 | 23 |
| University Graduate | 17 | 20.5 | 83 | 29 | 63.0 | 46 | 3 | 14.3 | 21 | 0 | 0.0 | 52 | 0 | 0.0 | 23 | 0 | 0.0 | 29 | 1 | 4.3 | 23 |
| Advanced Degree | 65 | 78.3 | 83 | 16 | 34.8 | 46 | 1 | 4.8 | 22 | 0 | 0.0 | 52 | 0 | 0.0 | 23 | 0 | 0.0 | 29 | 0 | 0.0 | 23 |
| Math/Science | | | | | | | | | | | | | | | | | | | | | |
| Grade School[a] | | | | | | | | | | | | | | | | | | | | | |
| Did Best In | 51 | 69.9 | 73 | 32 | 80.0 | 40 | 6 | 28.6 | 21 | 27 | 52.9 | 51 | 11 | 52.9 | 51 | 10 | 37.0 | 27 | 10 | 61.1 | 18 |
| High School[a] | | | | | | | | | | | | | | | | | | | | | |
| Did Best In | 56 | 71.8 | 78 | 36 | 80.0 | 45 | 7 | 35.0 | 20 | 30 | 60.0 | 50 | 15 | 78.9 | 19 | 9 | 42.9 | 21 | 11 | 61.1 | 18 |
| Adult[a] | | | | | | | | | | | | | | | | | | | | | |
| Wish Had Taken | 11 | 55.0 | 20 | 19 | 79.2 | 24 | 4 | 40.0 | 10 | 12 | 63.2 | 19 | 4 | 50.0 | 8 | 3 | 42.9 | 7 | 3 | 42.9 | 7 |
| Single Sex School - Positive | 39 | 47.6 | 82 | 7 | 14.9 | 47 | 7 | 33.3 | 21 | 4 | 7.7 | 52 | 3 | 12.5 | 24 | 5 | 17.2 | 29 | 0 | 0.0 | 22 |

[a] Differences between groups significant at the .05 level of confidence

At the adult level 79.2% of science/engineering wished they had taken more math and science and 63.2% of technologists felt the same deficiency. Fifty-five percent of the professionals and 50% of the trades were next in rank on this variable. Only 42.9% of both the semi-skilled and resource groups and 40% of the forces felt they were deficient in these subjects as they applied to their careers.

## Comparison between Groups

### Childhood

The science/engineers reported their best marks in science and math. The professionals and resource groups followed with more moderate results. Slightly lower were the technology and trades groups. Lowest in terms of childhood proficiency in math and science were the semi-skilled and the forces.

### Adolescence

Once again the science/engineers reported the highest level of proficiency in math and science, followed closely by the trades and professional groups. Next in ranking order were the resource and technology groups. Lowest results at the high school level were reported by the semi-skilled and the forces.

### Adult

At the adult level the science/engineering group

reported the largest group who wished they had taken more math and science. Somewhat fewer of the technologists, professionals and tradeswomen felt the need for more science and math. The semi-skilled, the resources and the forces reported the fewest members who felt the same deficiency.

Development Comparison - See Figure 11

The professionals, science/engineering and resource groups all reported similar levels of proficiency in science and math at both school levels. All other groups reported a slight level of improvement at the high school level. The trades group reported a more marked improvement in math and science in high school than any other group.

Educational Background - see Figure 12

The question on the educational background of the subjects produced the following results: The professionals were the most highly educated with 78.3% holding advanced degrees, and all of the groups were university educated. All of the science/engineers were university educated, with 34.8% holding advanced degrees. The forces reported 76.2% having some level of university education, whereas 71.7% of the technologists were graduates of a trade, vocational or other institute, most of the remainder had some university. The trades group

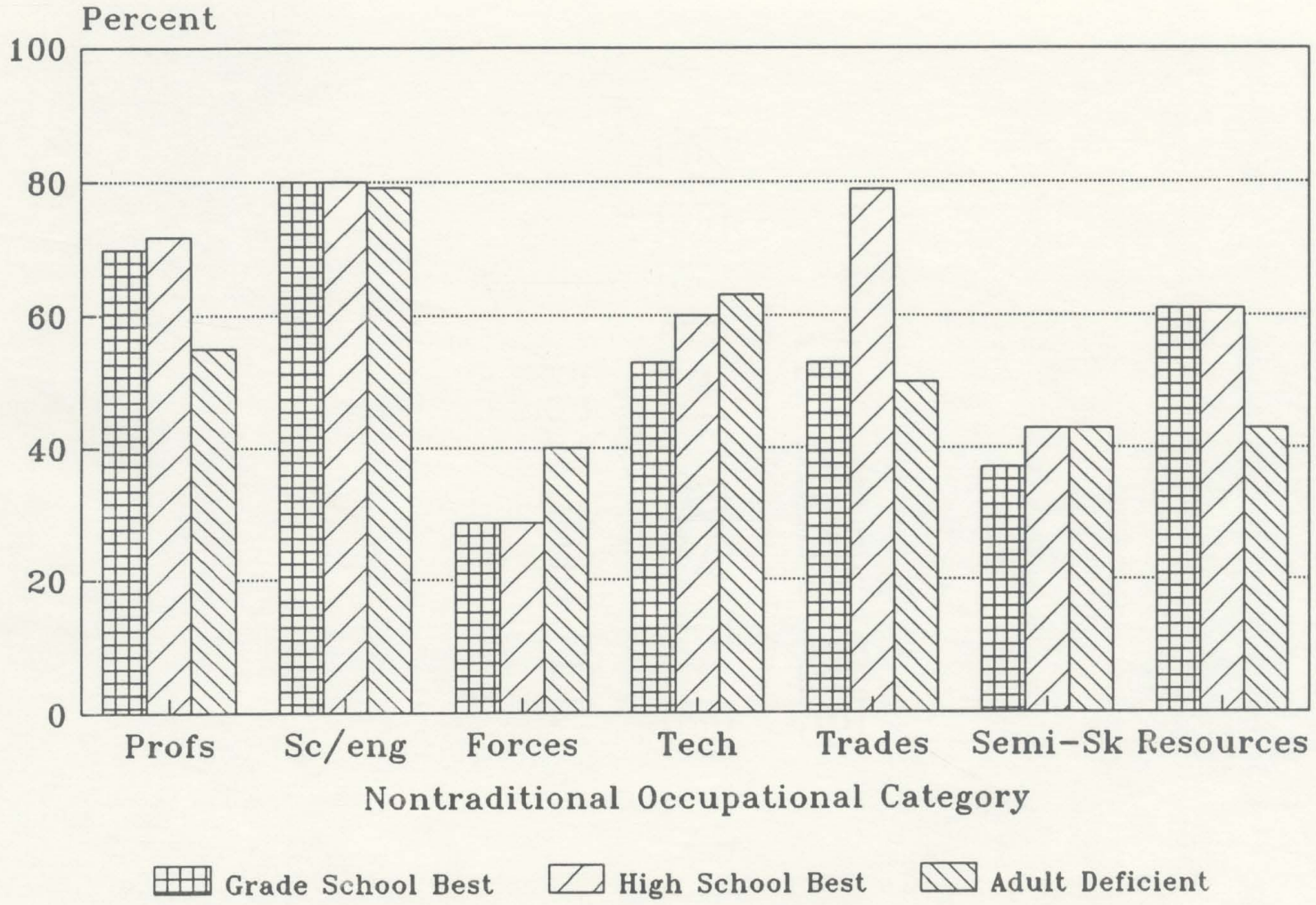


**Figure 11**
**Educational background of subjects: math/science proficiency**

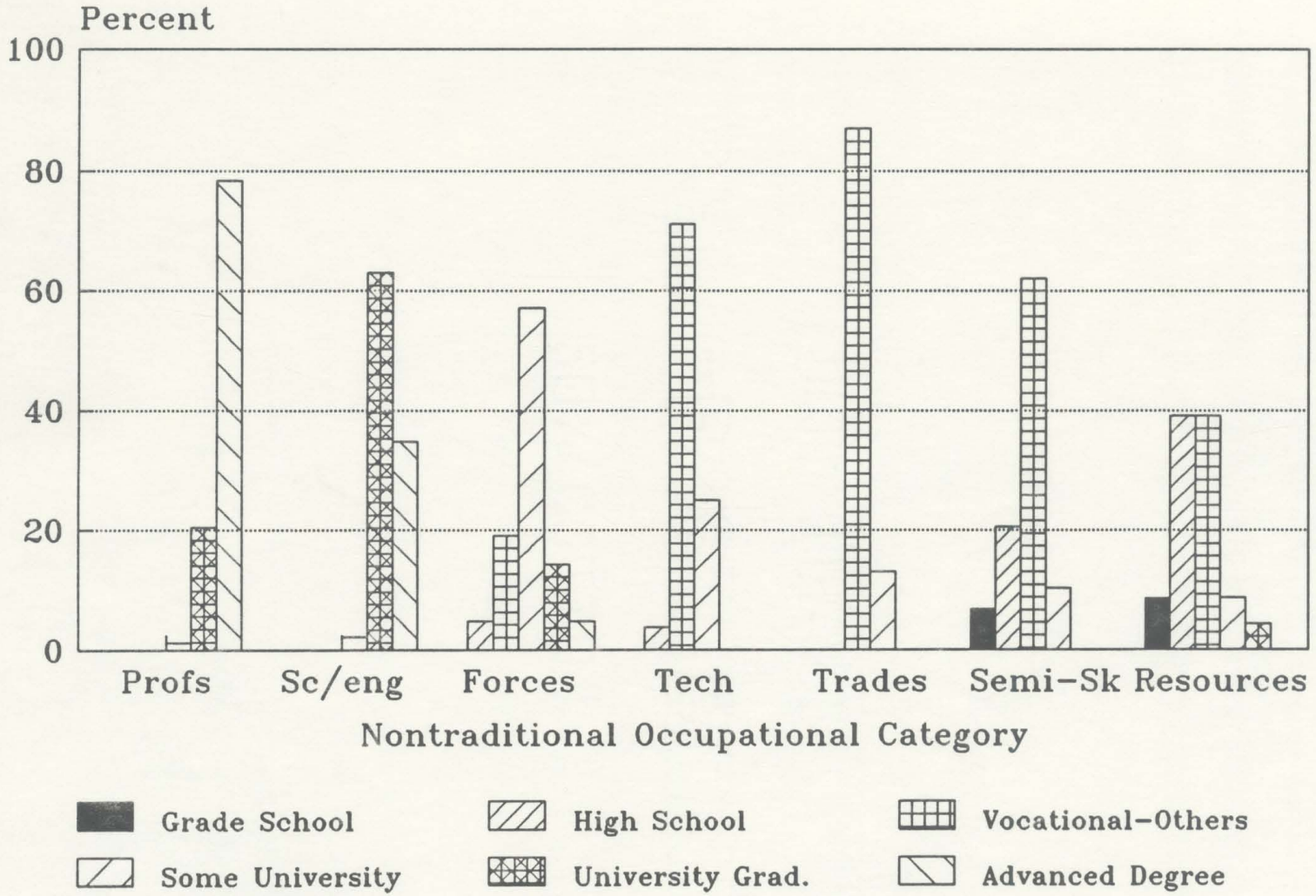


Figure 12

Subjects' education: percentage of highest level completed

reported 87% of their group completed their education at a vocational or other institute. Of the semi-skilled group 62% reported a similar level of training. Of the resource group 39% reported that they were vocational school graduates and 39% reported that they were high school graduates.

Type of school

The question on single sex schools revealed that of the total sample only 23.5% of the subjects attended an all girls school for all or most of their school years. The ranking and distribution were as follows: Of the professionals 47.6% attended single sex schools, the forces reported single sex schools for 33.3% of their group, the semi-skilled 17.2%, science/engineering 14.9%, trades 12.5% and technology 7.7%. The resource group did not have any members who attended an all girls school.

Research question 5(b): What, if any, are the similarities or differences in the development of the career decision making process among the nontraditional groups included in this study?

The purpose of this question was to pinpoint the level of development at which nontraditional careers were considered by the subjects. In childhood a nontraditional career was indicated by the type of occupation chosen. In adolescence the choice was

considered to be nontraditional if it was the same as their present career. At the adult level the early versus late career chosers were indicated by the question itself.

Childhood

(1) When you were in grade school, what did you want to be when you grew up?

(Questionnaire item no. 13b)

Adolescence

(1)(a) Did you have a career chosen by the end of high school?

(b) If yes, was it the same as your present career?

(c) Was career counselling available at your school?

(d) Did it help in your choice of a nontraditional career?

(Questionnaire item nos. 21a, b, c and d)

Adult

(1) Was your present occupation your first choice in deciding on a career as an adult?

(Questionnaire item no. 35a)

In the analysis of this question, at the childhood level, responses were classified as traditional and nontraditional. In adolescence, the career was classified as nontraditional if it was the same as the present career. In adulthood, the early career choosers

were indicated by a positive response. The statistics reported represent the percentage of nontraditional choices indicated by each group at each level of development.

Statistical data supporting the following conclusions are provided in Table 13.

The chi-square test of differences between the groups was significant.

Career Decision-Making - Results by Groups

Whereas no group showed an overwhelming interest in nontraditional occupations at the childhood level, some groups displayed a much greater interest than others. The science/engineering group indicated the strongest early tendency towards nontraditional occupation with 47.4% expressing such a preference. Next in ranking order were the trades with 42.9% and technologists with 41.7% of their groups opting for a nontraditional career. Other groups showed a lesser but still significant tendency. Thirty-five percent of the forces made nontraditional choices whereas 33.3% of the semi-skilled and resource groups made similar choices. The professionals revealed the lowest inclination of all the groups towards nontraditional occupations in childhood with only 20.8% of the group indicating such a preference.

Table 13
Percentage of Positive Responses
To Questions Concerning
Career Counselling And Decision Making

| Questionnaire Items | Profs | | | Sc/Eng | | | Forces | | | Tech | | | Trades | | | Semi-Skilled | | | Resources | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T.No | No. | % | T.No | No. | % | T. No |
| Nontraditional Career Choice As Child | 15 | 20.8 | 72 | 18 | 47.4 | 38 | 7 | 35.0 | 20 | 20 | 41.7 | 48 | 9 | 42.9 | 21 | 9 | 33.3 | 27 | 6 | 33.3 | 18 |
| Career Chosen By High School | 50 | 60.2 | 83 | 32 | 68.1 | 47 | 11 | 52.4 | 21 | 28 | 53.8 | 52 | 12 | 50.0 | 24 | 11 | 39.3 | 28 | 9 | 40.9 | 22 |
| Same As Present Career[a] | 28 | 50.0 | 56 | 14 | 43.8 | 32 | 3 | 25.0 | 12 | 5 | 15.6 | 32 | 2 | 12.5 | 15 | 2 | 13.3 | 15 | 2 | 18.2 | 11 |
| Career Counselling Available[a] | 61 | 73.5 | 83 | 36 | 78.3 | 46 | 13 | 61.9 | 21 | 30 | 57.7 | 52 | 11 | 45.8 | 24 | 15 | 53.6 | 28 | 4 | 19.0 | 21 |
| Helped in Nontraditional Choice | 8 | 12.7 | 63 | 5 | 13.2 | 38 | 0 | 0.0 | 14 | 4 | 11.4 | 35 | 1 | 7.7 | 13 | 1 | 5.9 | 17 | 2 | 33.3 | 6 |
| Present Occupation - First Adult Choice[a] | 53 | 63.9 | 83 | 24 | 53.3 | 45 | 7 | 33.3 | 21 | 10 | 19.2 | 52 | 4 | 16.7 | 24 | 6 | 21.4 | 28 | 6 | 28.6 | 21 |

[a] Differences between groups significant at the .05 level of confidence

At the adolescent stage, 68.1% of the science/ engineering group indicated that they had a career chosen by the end of high school. They were followed by the professionals who reported that 60.2% of the group had made a career decision at this stage. The technologists reported 53.8% had made a high school career choice followed by 52.4% of the forces, and 50% of the tradeswomen. The resource group reported that 40.9% and the semi-skilled that 39.3% of their groups had decided on careers at the high school level.

The professionals stated that 50% of their group had chosen their present career by the end of high school whereas the science/engineers indicated that 43.8% of their group had made such a decision. Congruency between high school decision and present occupation was indicated by 25% of the forces, 18.2% of the resource group and 15.6% of the technologists. The semi-skilled with 13.3% and the trades with 12.5% of their groups were the lowest ranking in terms of choosing their present occupation in high school.

At the adult level, a positive response to this question identified those who made early career decisions. A negative response identified those who made later career decisions. Of the professionals 63.9% reported that they had made early adult career choices

followed by 53.3% of the science/engineering group who reported positive responses. The forces ranked third with a substantial drop showing that 33.3% of this group had made an early career decision. Of the resource group 28.6% made early career choices followed by 21.4% of the semi-skilled and 19.27% of the technologists. The tradeswomen reported that for 16.7% of their numbers their present occupation was their first career choice as an adult.

## Comparison between Groups

### Childhood

The science/engineering group indicated the greatest childhood interest in nontraditional careers. The trades and technology groups reported slightly less interest followed in ranking order by the forces, the semi-skilled and resource groups. The professionals reported the least interest in nontraditional careers as children.

### Adolescence

The professionals had the greatest percentage of present career choices made at the high school level. Next in ranking order were the science/engineering group, the forces and the resource groups. The technologists, the semi-skilled and the trades made the fewest adult career decisions in high school.

Adult

The professionals and science/engineers had the highest percentage of women for whom their present occupation was their first adult choice. The forces, the resources and the semi-skilled were next in ranking order. The technologists and tradeswomen reported the lowest percentage of early adult career decisions.

Developmental Comparison - See Figure 13

All of the groups indicated their greatest choice of nontraditional careers at the childhood level and their lowest at the adolescent level except the professionals who indicated the fewest choices at the childhood level and the greatest number of nontraditional choices at the adult level.

Career Counselling Results

Career counselling was available for 78.3% of the science/engineering group and for 73.5% of the professionals. Of the forces 61.9% of their group reported having had career counselling available whereas 57.7% of technologists, 53.6% of the semi-skilled and 45.8% of the trades reported that their respective groups had career counselling available to them. Nineteen percent of the resource group reported that career counselling was available in their schools.

Career counselling was not seen as being very

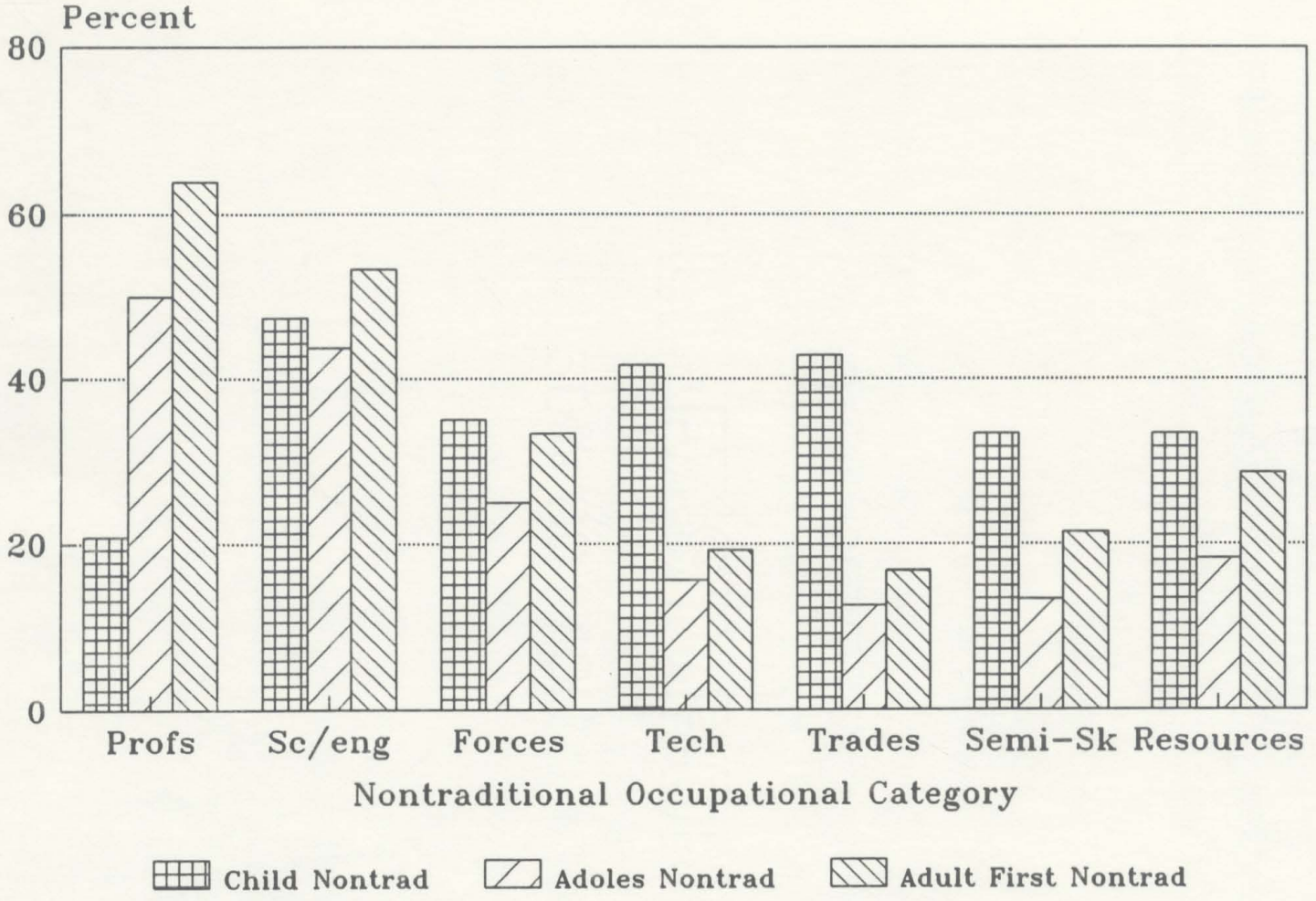


Figure 13
Career decision points: nontraditional choices

helpful in the choice of a nontraditional career. The science/ engineers, the professionals and the technologists each reported that a few of their group found counselling helpful for their present career choices. The resource group reported two persons were helped by counselling whereas the trades and semi-skilled reported that one from each group was helped. The forces stated that career counselling was of no help in deciding on a career for their group.

Research question 6: What, if any, are the differences or similarities in the influence of significant others during the three developmental stages of the nontraditional groups included in this study?

The review of the literature indicated that the interest and support of the important people, other than parents, in their lives, was often a determining influence on the nontraditional career choices made by females. It was also indicated that the influence and categories of these people change at different development levels.

The questionnaire items that applied to this research question were as follows:

Childhood:

(1) Did any of the following people take a special interest in your childhood activities? Siblings,

relatives, neighbour, your friend, parents' friend or others? Indicate whether male or female.

(Questionnaire item no. 12a)

Adolescence:

(1) Did any of the following people take a particular interest in your activities as a teenager: Siblings, other relatives, teacher, neighbour, your friend, parents friend, coach, counsellor or others? Indicate male or female.

(2) Explain briefly how this person or persons influenced you.

(Questionnaire item nos. 18b and d)

Adult:

(1) Which, if any, of the following people showed support for your choice of nontraditional career: Siblings, other relatives, instructor, neighbour, friend, husband/boyfriend, counsellor, women's group or others? Indicate whether male or female.

(2) Explain briefly how those you marked may have influenced or supported your decision.

(Questionnaire item nos. 30a and c)

The percentages reported in Tables 14, 15 and 16 represent the number of persons in each group that chose each of the variables listed.

Statistical data supporting the following

Table 14
Percentage of Responses to Questionnaire Items On
Important of Significant Others At Three Developmental Stages

| Questionnaire Items | Profs | | | Sc/Eng | | | Forces | | | Tech | | | Trades | | | Semi-Skilled | | | Resources | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T.No | No. | % | T.No | No. | % | T. No |
| Childhood | | | | | | | | | | | | | | | | | | | | | |
| Siblings[a] | 33 | 39.7 | 83 | 18 | 38.3 | 47 | 10 | 47.6 | 21 | 26 | 50.0 | 52 | 14 | 58.3 | 24 | 18 | 62.0 | 29 | 18 | 78.3 | 23 |
| Relative | 37 | 44.6 | 83 | 16 | 34.9 | 47 | 9 | 42.8 | 21 | 18 | 34.6 | 52 | 10 | 41.7 | 24 | 17 | 58.6 | 29 | 7 | 30.4 | 23 |
| Your Friend | 25 | 30.1 | 83 | 14 | 29.8 | 47 | 9 | 42.8 | 21 | 22 | 42.3 | 52 | 10 | 41.7 | 24 | 14 | 48.3 | 29 | 10 | 43.5 | 23 |
| Parent's Friend | 11 | 13.2 | 83 | 7 | 17.9 | 47 | 6 | 28.6 | 21 | 6 | 11.5 | 52 | 3 | 12.5 | 24 | 6 | 20.7 | 29 | 4 | 17.4 | 23 |
| Neighbour | 10 | 12.0 | 83 | 5 | 10.6 | 47 | 6 | 28.6 | 21 | 4 | 7.7 | 52 | 2 | 8.3 | 24 | 1 | 3.4 | 29 | 5 | 32.7 | 23 |
| Other | 9 | 10.8 | 83 | 1 | 2.1 | 47 | 1 | 4.8 | 21 | 3 | 5.8 | 52 | 3 | 12.5 | 24 | 4 | 13.8 | 29 | 1 | 4.3 | 23 |

[a] Differences between groups significant at the .05 level of confidence

Table 15
Percentages Of Responses To Questionnaire Items On
Importance of Significant Others At Three Developmental Stages

| Questionnaire Items | Profs | | | Sc/Eng | | | Forces | | | Tech | | | Trades | | | Semi-Skilled | | | Resources | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T.No | No. | % | T.No | No. | % | T. No |
| Adolescence | | | | | | | | | | | | | | | | | | | | | |
| Siblings | 37 | 44.6 | 83 | 20 | 42.5 | 47 | 11 | 52.4 | 21 | 29 | 55.8 | 52 | 13 | 54.2 | 24 | 16 | 55.2 | 29 | 16 | 69.6 | 23 |
| Other Relative[a] | 31 | 37.3 | 83 | 9 | 19.1 | 47 | 8 | 38.1 | 21 | 16 | 30.8 | 52 | 5 | 20.8 | 24 | 15 | 51.7 | 29 | 4 | 17.4 | 23 |
| Teacher | 34 | 41.0 | 83 | 19 | 40.4 | 47 | 11 | 52.4 | 21 | 17 | 32.7 | 52 | 7 | 29.2 | 24 | 11 | 37.9 | 29 | 11 | 47.8 | 23 |
| Your Friend | 32 | 38.5 | 83 | 17 | 36.2 | 47 | 13 | 61.9 | 21 | 27 | 51.9 | 52 | 14 | 58.3 | 24 | 20 | 69.9 | 29 | 14 | 60.9 | 23 |
| Parent's Friend[a] | 10 | 12.0 | 83 | 7 | 14.9 | 47 | 2 | 9.5 | 21 | 2 | 3.8 | 52 | 1 | 4.2 | 24 | 3 | 10.3 | 29 | 1 | 4.3 | 23 |
| Neighbour | 9 | 10.8 | 83 | 5 | 10.6 | 47 | 3 | 14.3 | 21 | 2 | 3.8 | 52 | 1 | 4.2 | 24 | 1 | 3.4 | 29 | 4 | 17.4 | 23 |
| Coach[a] | 4 | 4.8 | 83 | 11 | 23.4 | 47 | 7 | 33.3 | 21 | 7 | 13.5 | 52 | 4 | 16.7 | 24 | 4 | 13.8 | 29 | 1 | 4.3 | 23 |
| Counsellor | 3 | 3.6 | 83 | 1 | 2.1 | 47 | 1 | 4.8 | 21 | 5 | 9.6 | 52 | 4 | 16.7 | 24 | 1 | 3.4 | 29 | 0 | 0.0 | 23 |
| Other | 3 | 3.6 | 83 | 2 | 4.2 | 47 | 3 | 14.3 | 21 | 1 | 1.9 | 52 | 1 | 4.2 | 24 | 2 | 6.8 | 29 | 0 | 0.0 | 23 |

[a] Difference between groups significant at the .05 level of confidence

Table 16
Percentages Of Responses To Questionnaire Items On
Importance of Significant Others At The Adult Stage

| Questionnaire Items | Profs | | | Sc/Eng | | | Forces | | | Tech | | | Trades | | | Semi-Skilled | | | Resources | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T.No | No. | % | T.No | No. | % | T. No |
| Adult | | | | | | | | | | | | | | | | | | | | | |
| Siblings[a] | 59 | 71.1 | 83 | 21 | 44.7 | 47 | 11 | 52.4 | 21 | 33 | 63.5 | 52 | 16 | 6637 | 24 | 12 | 41.4 | 29 | 10 | 43.5 | 23 |
| Relatives | 34 | 41.0 | 83 | 12 | 25.5 | 47 | 5 | 23.8 | 21 | 11 | 21.1 | 52 | 12 | 50.0 | 24 | 9 | 31.0 | 29 | 5 | 21.7 | 23 |
| Husband/Boy-friend | 44 | 53.0 | 83 | 15 | 31.9 | 47 | 9 | 42.9 | 21 | 30 | 57.7 | 52 | 12 | 50.0 | 24 | 19 | 65.5 | 29 | 13 | 56.5 | 23 |
| Friend | 35 | 42.2 | 83 | 20 | 42.6 | 47 | 14 | 66.7 | 21 | 22 | 42.3 | 52 | 14 | 48.3 | 24 | 12 | 41.4 | 29 | 10 | 43.5 | 23 |
| Instructor[a] | 30 | 36.1 | 83 | 21 | 44.7 | 47 | 3 | 14.3 | 21 | 15 | 28.8 | 52 | 12 | 50.0 | 24 | 4 | 13.8 | 29 | 0 | 0.0 | 23 |
| Neighbour | 10 | 12.0 | 83 | 8 | 17.9 | 47 | 2 | 9.5 | 21 | 3 | 5.8 | 52 | 3 | 12.5 | 24 | 3 | 10.3 | 29 | 7 | 30.4 | 23 |
| Counsellor | 3 | 3.6 | 83 | 5 | 10.6 | 47 | 0 | 0.0 | 21 | 2 | 3.8 | 52 | 3 | 12.5 | 24 | 1 | 3.4 | 29 | 1 | 4.3 | 23 |
| Women's Group | 1 | 1.2 | 83 | 3 | 6.4 | 47 | 1 | 4.8 | 21 | 4 | 7.7 | 52 | 5 | 20.8 | 24 | 1 | 3.4 | 29 | 1 | 4.3 | 23 |
| Other | 8 | 9.6 | 83 | 6 | 12.8 | 47 | 2 | 9.5 | 21 | 7 | 13.5 | 52 | 2 | 8.3 | 24 | 4 | 13.8 | 29 | 0 | 0.0 | 23 |

[a] Differences between groups significant at the .05 level of confidence

conclusions is provided in Tables 14, 15 and 16 and Figures 14, 15 and 16.

The chi-square test of differences between the groups was significant for: siblings in childhood; relatives, parents' friends and coaches in adolescence; and for siblings and instructors in adulthood.

The professionals

Apart from their parents, the most important or significant other influences reported by the professionals at the childhood level, were relatives, siblings and friends in that order. At the adolescent level that list increased to siblings, teachers, friends and relatives, again in that order. By adulthood the most important influences had expanded to include siblings, husband/boyfriends, friends, relatives and instructors in ranking order.

Developmental Results for the Professionals

For the professionals, the relatives or extended family members were of paramount importance in childhood followed by the influence of siblings. However, at each succeeding stage the relatives decreased in importance while the sibling influence increased proportionately. The influence of friends maintained third place but increased in percentage throughout the developmental span. The influence of the teacher had a very low

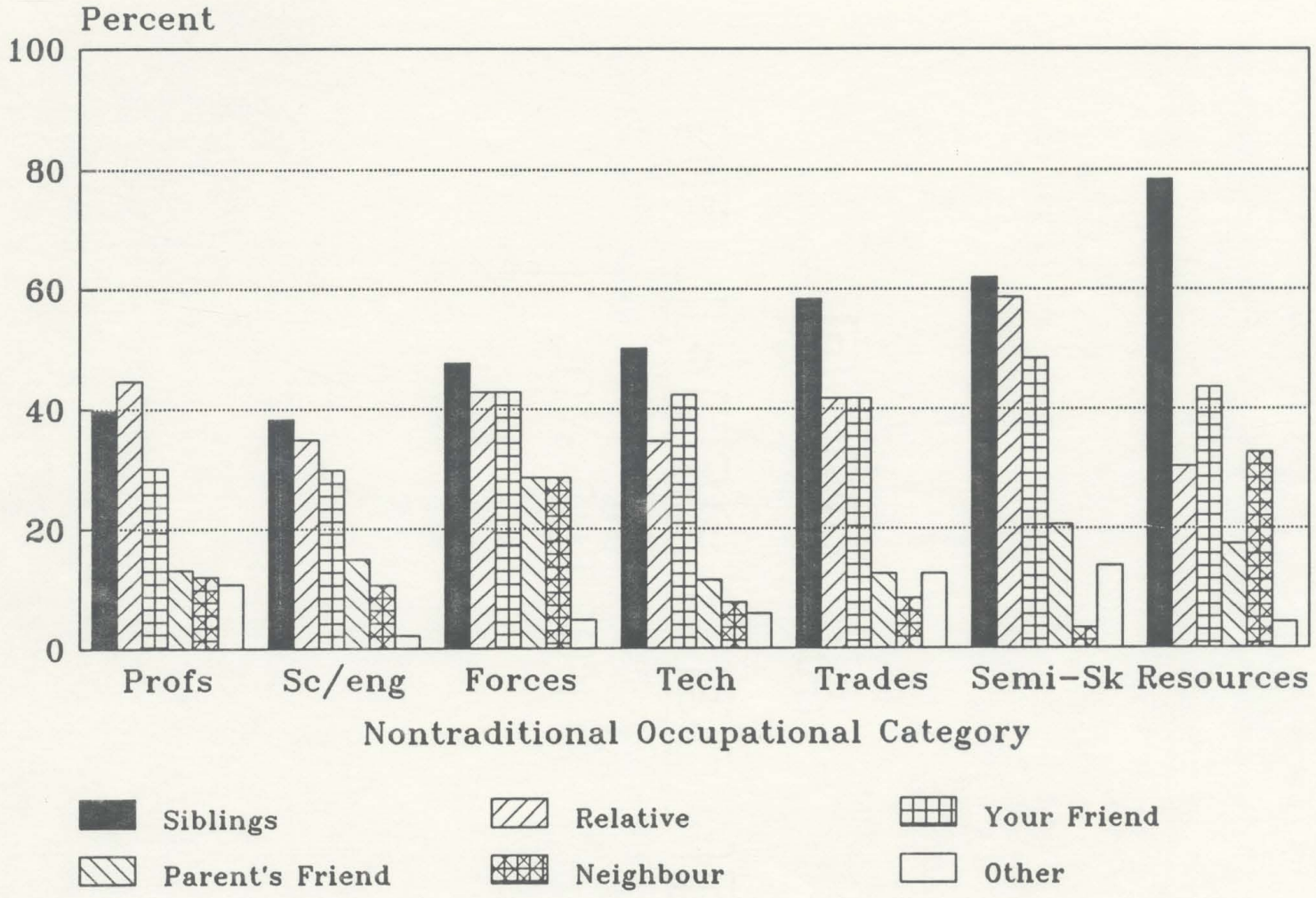


Figure 14

Significant others in childhood

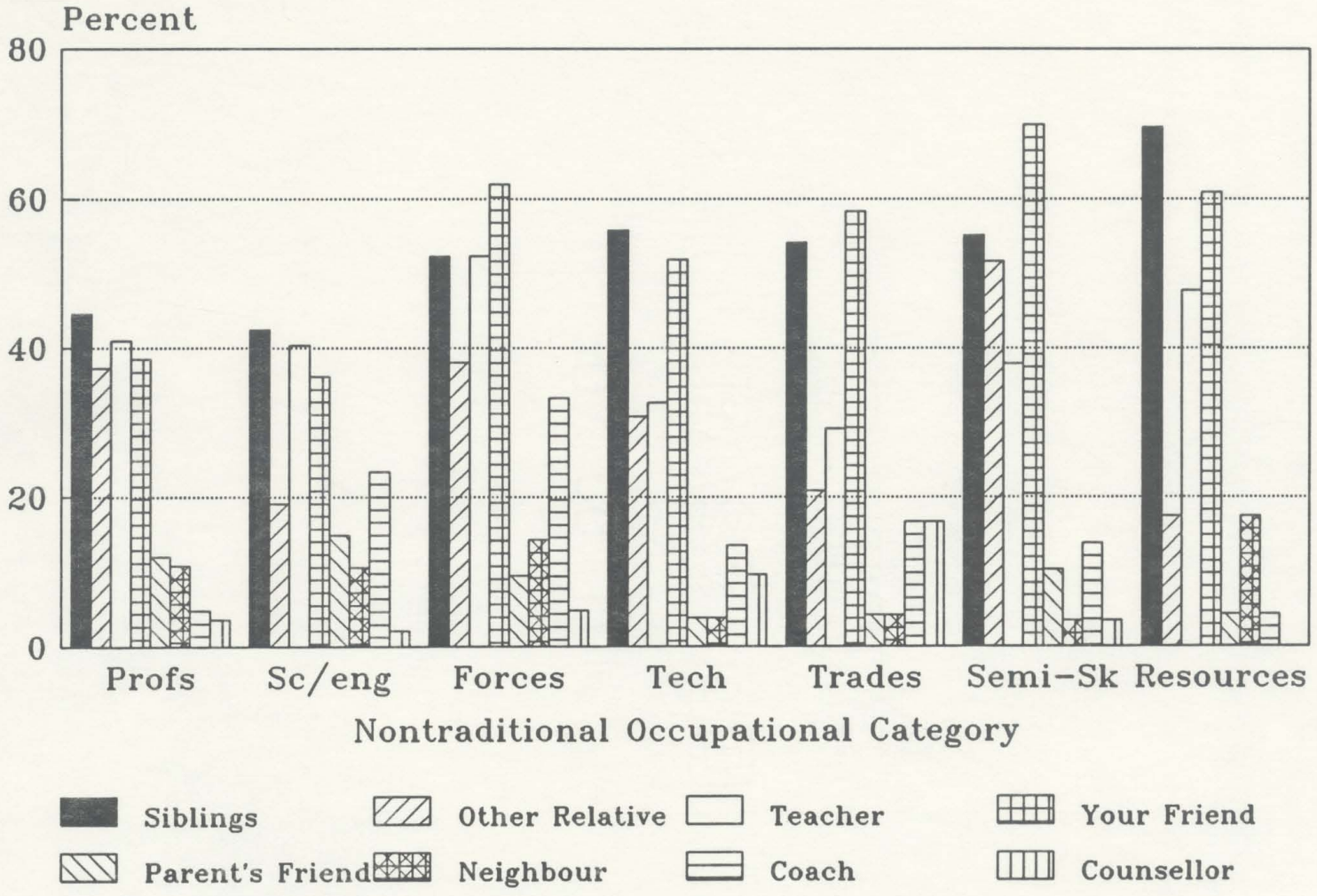


Figure 15

Significant others in adolescence

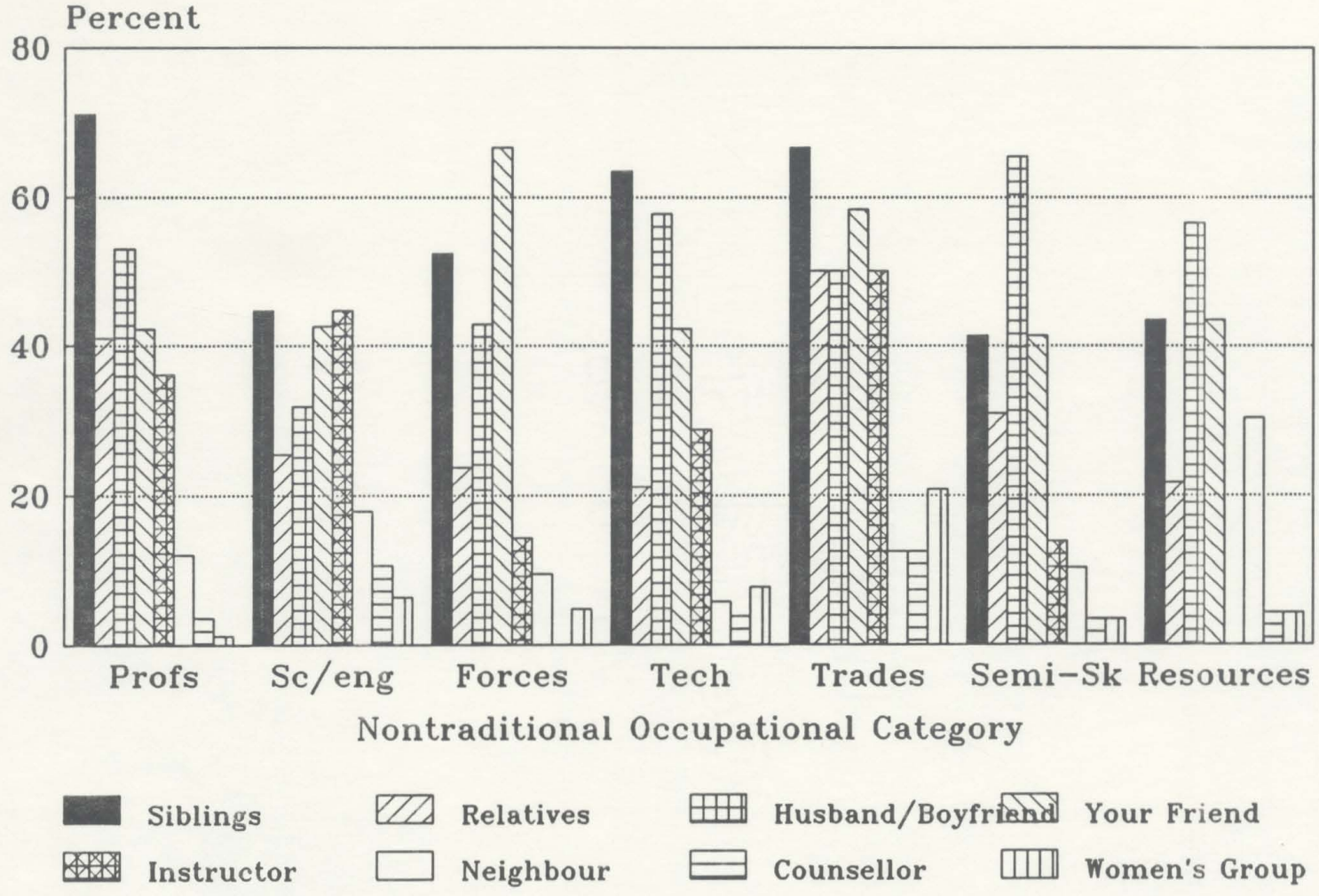


Figure 16

Significant others in adulthood

priority as 'others' in childhood but increased dramatically to second most important influence in adolescence tapering off to fifth place in adulthood. Husbands and boyfriends were second only to siblings at the adult level.

The science/engineers

The science/engineers group reported that siblings were the people most interested in them in childhood, followed by relatives and then friends. In adolescence they named siblings, teachers, friends, coaches and relatives in ranking order of their perceived interest. At the adult stage, siblings shared the highest degree of interest in this group with their instructors, followed by that of friends, husbands/boyfriends and relatives. The science/engineers reported the lowest amount of interest by husbands/boyfriends of all the groups surveyed.

Developmental results for science/engineers

The most important influences on the lives of the science/engineering group, that is, the siblings, friends and teachers in that order, all increased slightly at each developmental stage. The importance of relatives decreased in adolescence and adulthood, perhaps replaced at the adult level by the husband/boyfriend category.

The forces

The forces reported that their most important childhood influences were siblings, followed by relatives and friends, each having equal importance. In adolescence, friends had become by far the most important influences, followed by siblings, teachers and relatives in ranking order. At the adult stage, friends again were of greatest importance followed by siblings, husbands/ boyfriends, and then relatives.

Developmental results for the forces

The importance of siblings for the forces was very high throughout all three developmental stages, increasing slightly in percentage in adolescence and adulthood but dropping to second place in rank at these stages. Friends became increasingly important through each developmental stage and by adulthood, and were more important for this group than for any other. Conversely, the influence of relatives went through a gradual decrease at each of the three stages as did the influence of neighbours and parents' friends. The influence of teachers was greater on the forces, than on any other group in adolescence.

The technologists

The women in technology reported that siblings were their most important influence at all three stages of

development. Friends and relatives were also of primary importance in childhood. In adolescence siblings again were the most important influence followed closely by friends, teachers and relatives. In adulthood, siblings were by far the most important influence followed by husbands/ boyfriends, friends, instructors and relatives in ranking order.

Developmental results for the technologists

Developmentally the influence of siblings for this group increased at each stage while the influence of the other relatives showed a gradual decrease. The influence of friends, while important at all stages, peaked at adolescence and returned to the childhood level in adulthood. The influence of teachers was fairly important both in adolescence and adulthood.

The trades group

In childhood, the tradeswomen reported that siblings, relatives and friends were their most important influences. At the adolescent level the influences changes to friends and siblings followed by teachers and relatives. Siblings remained most important in adulthood, followed by friends. Relatives, husbands/boyfriends and instructors all rated the same level of importance for this group at the adult stage.

Development results for the tradeswomen

Siblings were the most important influence for the tradeswomen at all stages of development. The influence of relatives was high in childhood and adulthood but declined markedly in adolescence. Friends were important to this group at all three stages, but more so in adolescence and adulthood. The influence of teachers was low in adolescence but in adulthood the influence of instructors was highest of all the groups. The influence of counsellors was highest of all groups in adolescence and adulthood.

The semi-skilled workers

The semi-skilled group reported that siblings relatives and friends had the greatest influence on them at the childhood level in ranking order of importance. In adolescence, friends became most important followed by siblings, relatives and teachers, also in ranking order. By far the most important influence for this group in adulthood was husbands/boyfriends followed by siblings and other friends having equal status, then other relatives.

Developmental results for the semi-skilled

The influence of siblings, while important throughout the developmental period showed a gradual decrease at each stage for the semi-skilled group. A

similar decrease in influence was reported also for other relatives. The influence of husbands/boyfriends was by far the greatest influence at the adult stage and greater than for any other group. The influence of friends peaked at the adolescent stage to the highest ranking among all levels for all groups surveyed.

The women in resources

The most important childhood influences on the women working in primary resources were siblings, friends and relatives. In adolescence these rankings changed slightly to siblings, friends and teachers. In adulthood the most important influence was husbands/ boyfriends with second place shared by siblings and friends.

Developmental results for the resource group

The influence of siblings on the resource group declined at each developmental stage. The influence of friends peaked in adolescence and returned to the childhood level in adulthood. Relatives were highest in childhood, lowest in adolescence and rose again slightly as adults. Teachers had the greatest influence in adolescence on the resources compared to all other groups, however, instructors as adults had no influence. The influence of relatives was lowest among all groups surveyed at all three stages.

## Comparison Between Groups

At the childhood level the three most important influences for all of the groups were siblings, relatives and friends. Siblings were first choice for all groups, except professionals, who ranked relatives first and siblings second. Relatives were second for all other groups, except technology and resources, who ranked them third. Friends ranked second or third for all groups.

At the adolescent level the four most important influences were siblings, friends, teachers and relatives. Siblings ranked first for all groups except forces, technology and semi-skilled who ranked them second. Friends were ranked first or second by all groups except the professionals and science/engineering groups who ranked them third. Teachers were ranked second by professionals, science/engineering and forces, and third by all other groups, except the semi-skilled group which ranked them fourth. Relatives were ranked third or fourth by all groups except science/engineering which ranked them fifth.

At the adult stage, siblings, husbands/boyfriends and friends were the three most important influences for all the groups. Relatives and teachers had a more moderate influence for most groups. Siblings were ranked first in order of importance for all groups except the

forces, semi-skilled and resource groups which ranked them second. Husbands/ boyfriends ranked first for semi-skilled and resources, second for technologists and professionals and third for all other groups. Friends ranked first for the forces and second for all others except professionals and technologists which ranked them third. Relatives were ranked third in importance by the trades and semi-skilled groups and fourth by all other groups except the technologists who ranked relatives fifth. Surprisingly, at the adult stage, the technologists ranked their instructors as the most important influence, while trades ranked their instructors third. All other groups ranked instructors third or fourth while resources stated that instructors had no influence on them whatsoever at the adult stage.

Less significant others

Parents' friends and neighbours were of lesser importance for all groups at all stages of development except for the resource group for whom neighbours were fairly important at all stages of development and particularly at the adult stage. The influence of parents' friends declined in adolescence for all groups except the professionals and science/engineers for whom it remained the same. Counsellors were an important influence on the trades and technology groups at the

adolescent stage and on the trades and science/ engineering groups at the adult stage. Coaches were an important influence on the forces and science/ engineering groups but also exerted a significant influence on all other groups in adolescence except the professionals and resource groups. Women's groups exerted the greatest amount of influence on the trades group and some influence on the technology and science/engineering groups.

Masculine Influence - see Figure 17

The masculine influence of significant others was least felt in childhood, somewhat greater in adolescence and greatest of all in adulthood for all groups. At this latest stage of development the masculine influence accounted for more than half of the significant others for all groups except the resource group for whom it was slightly less than half of the significant others.

Role models vs advisors - see Figure 18

At the adolescent and adult levels respondents were asked to make a distinction betweens the types of influence exerted by significant others. These two sub-categories were designated role models if the person was admired or imitated and advisors if advice or support were expressed by those persons.

At the adolescent level the greatest number of role

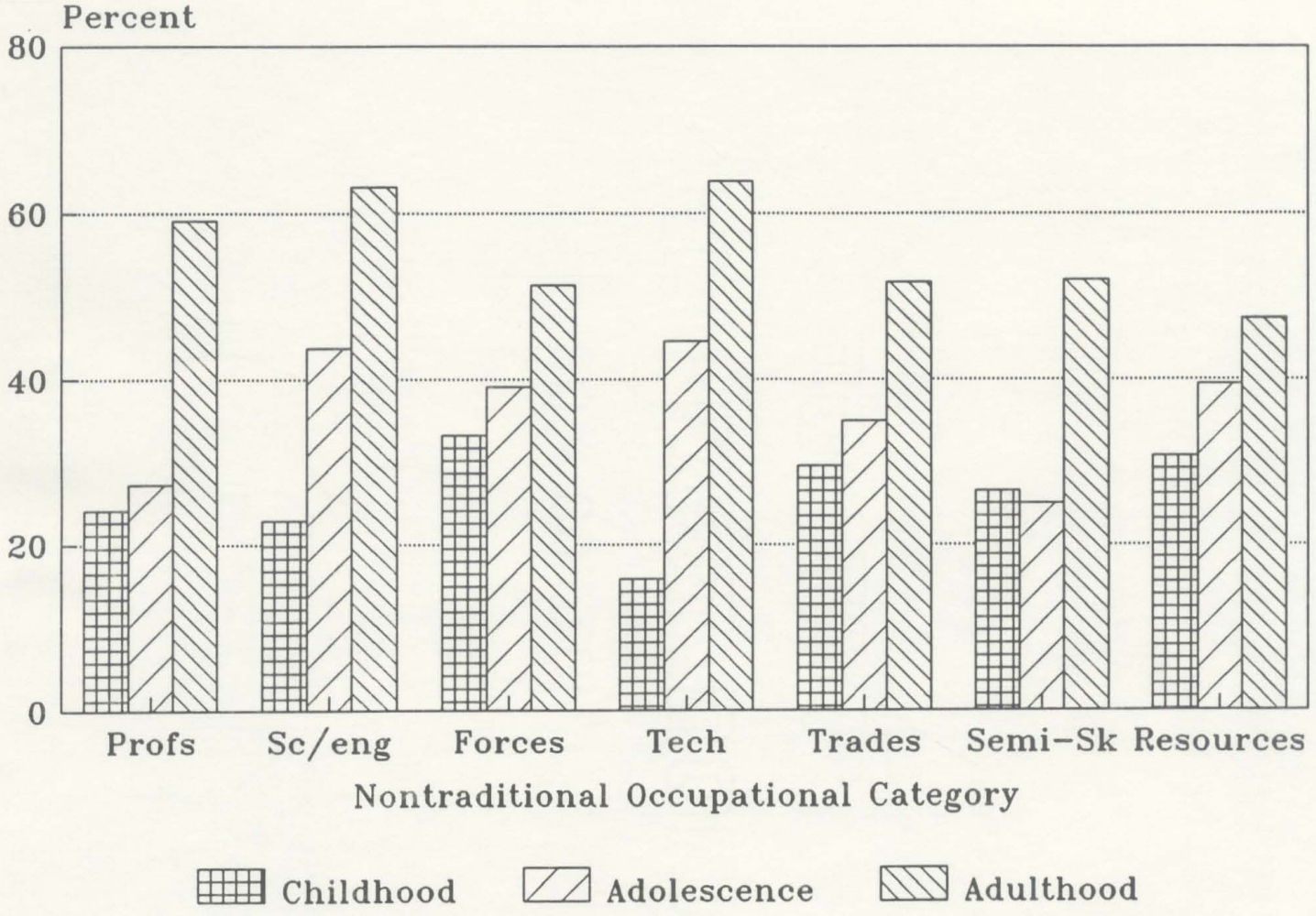


**Figure 17**
**Masculine influence at three developmental levels**

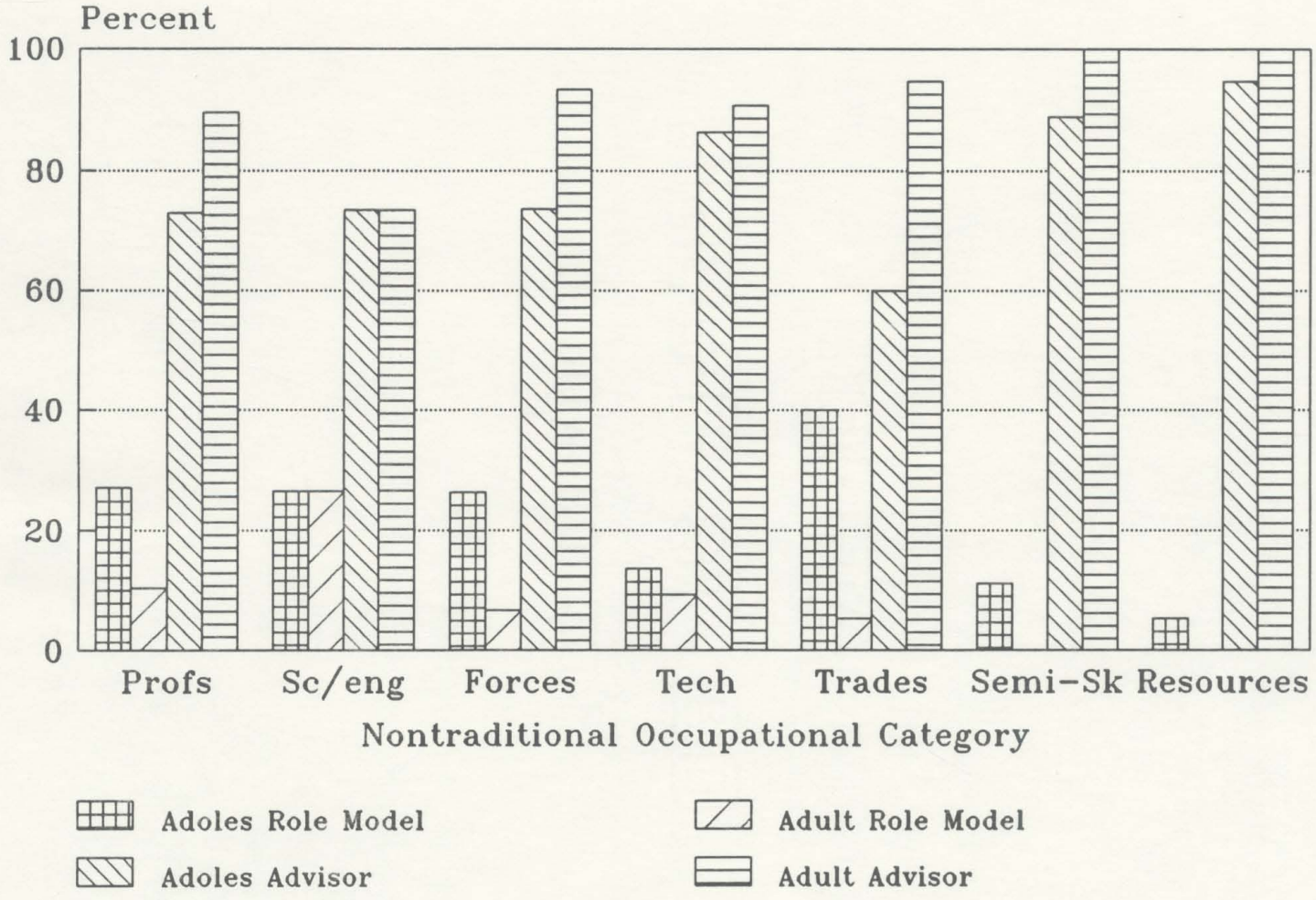


Figure 18
Significant others: role model vs advisors

models were available to the trades group, fewer were available to the professionals, science/engineering, forces and technology groups. Very few role models were available to the semi-skilled and resource groups.

At the adult level, the availability of role models decreased sharply for all groups except the science/ engineering group which retained the same percentage at both adolescent and adult levels. The professionals and technologists had fewer role models in adulthood than in adolescence. Role models for all other groups at the adult stage were negligible or non-existent.

The results and ranking for advisors and role models may be seen in Table 17. Advisors accounted for the type of influence exerted by the vast majority of significant others who influenced the lives of this sample.

Research question 7: What if any, are the differences or similarities in the type of work experience encountered at three developmental levels by the nontraditional groups included in this study?

It was shown in the review of the literature that a background of previous work experience, particularly in nontraditional fields, was a determining factor in female nontraditonal career choice. As in the question on nontraditional interests, the traditional or nontraditional classification of an item was based on

Table 17
Percentage Of Responses To Questionnaire Items On
Aspects Of Influence Of Significant Others

| Questionnaire Items | Profs | | | Sc/Eng | | | Forces | | | Tech | | | Trades | | | Semi-Skilled | | | Resources | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T.No | No. | % | T.No | No. | % | T. No |
| Type of Influence | | | | | | | | | | | | | | | | | | | | |
| Adolescence[a] | | | | | | | | | | | | | | | | | | | | |
| Role Model | 17 | 27.0 | 63 | 9 | 26.5 | 34 | 5 | 26.3 | 19 | 6 | 13.6 | 44 | 8 | 40.0 | 20 | 3 | 11.1 | 27 | 1 | 5.3 | 19 |
| Advisors | 46 | 73.0 | 63 | 25 | 73.5 | 34 | 14 | 73.7 | 19 | 38 | 86.4 | 44 | 12 | 60.0 | 20 | 24 | 88.9 | 27 | 18 | 94.7 | 19 |
| Adult[a] | | | | | | | | | | | | | | | | | | | | |
| Role Models | 7 | 10.4 | 67 | 9 | 26.5 | 34 | 1 | 6.7 | 15 | 4 | 9.3 | 43 | 1 | 5.3 | 19 | 0 | 0.0 | 21 | 0 | 0.0 | 16 |
| Advisors | 60 | 89.6 | 67 | 25 | 73.5 | 34 | 14 | 93.3 | 15 | 39 | 90.7 | 43 | 18 | 94.7 | 19 | 21 | 100 | 21 | 16 | 100 | 16 |
| Percentage of Masculine Influence | | | | | | | | | | | | | | | | | | | | |
| Childhood | 22 | 24.2 | 91 | 9 | 22.9 | 41 | 10 | 33.3 | 30 | 9 | 15.8 | 57 | 8 | 29.6 | 27 | 9 | 26.5 | 34 | 12 | 30.8 | 39 |
| Adolescence | 35 | 27.3 | 128 | 32 | 43.8 | 73 | 18 | 39.1 | 46 | 37 | 44.6 | 83 | 14 | 35.0 | 40 | 11 | 25.0 | 44 | 15 | 38.5 | 38 |
| Adult | 97 | 59.1 | 164 | 48 | 63.2 | 76 | 18 | 51.4 | 35 | 62 | 63.9 | 97 | 30 | 51.7 | 58 | 26 | 52.0 | 50 | 18 | 47.4 | 38 |

[a] Differences between groups significant at the .05 level of confidence

what was considered an appropriate activity for females in Newfoundland during the period in which these women were growing up. The nontraditional items for each level of development are listed in the following questionnaire items for this research question.

Childhood

(1) Did you have any regular chores as a child such as housework, outside work, maintenance or taking care of others?

(Questionnaire item no. 13a)

Adolescence

(1) Did you perform any of the following jobs as a teenager: Babysitting, paper route, shopkeeping, mowing lawns, delivery person, housekeeping, fishing or farming, restaurant worker?

(Questionnaire item no. 20)

Adult

(1) List any previous work experience you have had since high school including full-time, part-time, summer or weekend jobs.

(Questionnaire item no. 32a)

At the childhood and adolescent levels the percentages represent the number of nontraditional choices made by each group at each of the two developmental levels. At the adult level, all previous

work experiences were categorized as traditional or nontraditional. The total number for each category was computed for each respondent. The percentages represent the number of nontraditonal work experiences for each group based on their total work experience.

Statistical data for the following conclusions are provided in Table 18.

The chi-square test of differences between the groups was significant.

The nontraditional childhood items were outside work and maintenance whereas in adolescence the nontraditional jobs were; paper route, mowing lawns, delivery person, fishing or farming. At the adult level the Holland nontraditional choices were; working with things, working with ideas and work that is verbal.

## Results by Groups

Twenty percent of the professionals reported nontraditional chores in childhood, 7.2% reported the same choices in adolescence and 32.8% reported a preference for nontraditional types of work. The professionals had the lowest total rate of nontraditional work experience of all the groups.

Of the science/engineers, 45.2% reported nontraditional work in childhood, 15.5% in adolescence and 61.8% in adulthood. The science/engineering group

Table 18
Percentage Of Responses To Questionnaire Items On
Work Experience At Three Developmental Stages

| Questionnaire Items | Profs | | | Sc/Eng | | | Forces | | | Tech | | | Trades | | | Semi-Skilled | | | Resources | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T. No | No. | % | T.No | No. | % | T.No | No. | % | T. No |
| Childhood[a] | | | | | | | | | | | | | | | | | | | | | |
| Total Traditional Items Chosen | 101 | 80.2 | 126 | 46 | 54.8 | 84 | 24 | 60.0 | 35 | 51 | 59.3 | 86 | 30 | 56.6 | 53 | 36 | 54.5 | 66 | 30 | 55.5 | |
| Total Nontraditional Items Chosen | 25 | 19.8 | 126 | 38 | 45.2 | 81 | 14 | 40.0 | 35 | 35 | 40.7 | 86 | 23 | 43.4 | 53 | 30 | 45.5 | 66 | 24 | 44.4 | |
| Adolescence[a] | | | | | | | | | | | | | | | | | | | | | |
| Total traditional Items Chosen | 103 | 92.8 | 111 | 60 | 84.5 | 71 | 33 | 97.0 | 34 | 74 | 78.7 | 94 | 31 | 77.5 | 40 | 41 | 82.0 | 50 | 35 | 81.4 | |
| Total Nontraditional Items Chosen | 8 | 7.2 | 111 | 11 | 15.5 | 71 | 1 | 2.9 | 34 | 20 | 21.1 | 94 | 9 | 22.5 | 40 | 9 | 18.0 | 50 | 8 | 18.6 | |
| Adult[a] | | | | | | | | | | | | | | | | | | | | | |
| Total Traditional Items Listed | 162 | 37.2 | 241 | 52 | 38.2 | 136 | 35 | 76.0 | 46 | 80 | 60.2 | 133 | 41 | 66.1 | 62 | 63 | 68.5 | 92 | 37 | 64.9 | |
| Total Nontraditional Items Listed | 79 | 32.8 | 241 | 84 | 61.8 | 136 | 11 | 23.9 | 46 | 53 | 39.8 | 133 | 21 | 33.9 | 62 | 29 | 31.5 | 92 | 20 | 36.1 | |
| Total Nontraditional Work Experience | 112 | 23.4 | 478 | 133 | 45.7 | 291 | 26 | 22.6 | 115 | 108 | 34.5 | 313 | 53 | 34.2 | 155 | 68 | 32.7 | 208 | 52 | 33.8 | 1 |
| Average Adult Per Capita Work Experience | 241 | 2.9 | 83 | 136 | 2.89 | 47 | 46 | 2.19 | 21 | 133 | 2.56 | 52 | 62 | 2.58 | 24 | 92 | 3.17 | 29 | 57 | 2.48 | |

[a] Differences between groups significant at the .05 level of condfidence

had the highest life time accumulation of nontraditional work experience of all the groups.

Forty percent of the forces reported that they did nontraditional work in childhood, dropping to 2.9% of the group in adolescence and 23.9% in adulthood. The forces had the second lowest total rate of nontraditional work experience for the three levels of development among all the groups.

At the childhood level 40.7% of the technologists reported nontraditional work experience, in adolescence 21.1% reported similar experience and in adulthood 39.8% reported that they preferred nontraditional types of work. The technologists had the second highest ranking in total nontraditional work experience.

Among the trades group 43.4% reported nontraditional work experience in childhood, 22.5% in adolescence and 33.9% in adulthood. The trades group had the third highest rate of total nontraditional work experience.

The semi-skilled group reported that 45.5% of their numbers had nontraditional work experience in childhood, 18% in adolescence and 31.5% in adulthood. The semi-skilled group had fifth place ranking in total nontraditional work experience compared to all of the other groups.

Of the resource group, 44.4% reported nontraditional

work experience in their childhood, 18.6% reported similar experience in their adolescence and 36.1% reported a preference for nontraditional work as adults. The resource workers had third place ranking in total nontraditional work experience.

Between group comparisons

All of the groups reported that a fairly high percentage of nontraditional chores, between forty and forty-five percent, were performed at the childhood stage, except the professional group who reported only about half as many nontraditional chores as the other groups at this level.

The percentage of nontraditional chores performed at the adolescent stage dropped sharply to half or less of the childhood rate for all groups. The trades and technology groups were highest followed by the resource, semi-skilled and science/engineering groups in that order. Lowest of all in adolescent nontraditional work experience were the professionals and the forces.

At the adult level the science/engineering group had nearly twice as much nontraditional work experience as any of the other groups. The women in technology were next highest, followed closely by the resource, trades, professional and semi-skilled groups in ranking order. The forces had the least amount of nontraditional work

experience at the adult level. All of the groups recorded their second highest rate of nontraditional work experience at the adult level except the science/ engineering and the professionals for whom it was the highest rate.

Developmental Comparison - See Figure 19

In comparing the important trends at the three stages of development, it was noted that in childhood, the semi-skilled and science/engineers had the highest rates of nontraditional chore participation while the professionals had the lowest. In adolescence the highest rates were reported by the trades and technology groups and the lowest by the professionals and the forces. At the adult level the highest rate of nontraditional work experience was recorded by the science/engineering group, with technology a distant second. The lowest rates at this level once again were the forces and the professionals.

Per capita work experience

At the adult level the total per capita work experiences were able to be calculated as this was an open question. The results recorded were as follows. The semi-skilled group had the greatest number of previous work experiences, the science/engineering and professionals had quite similar scores for second and

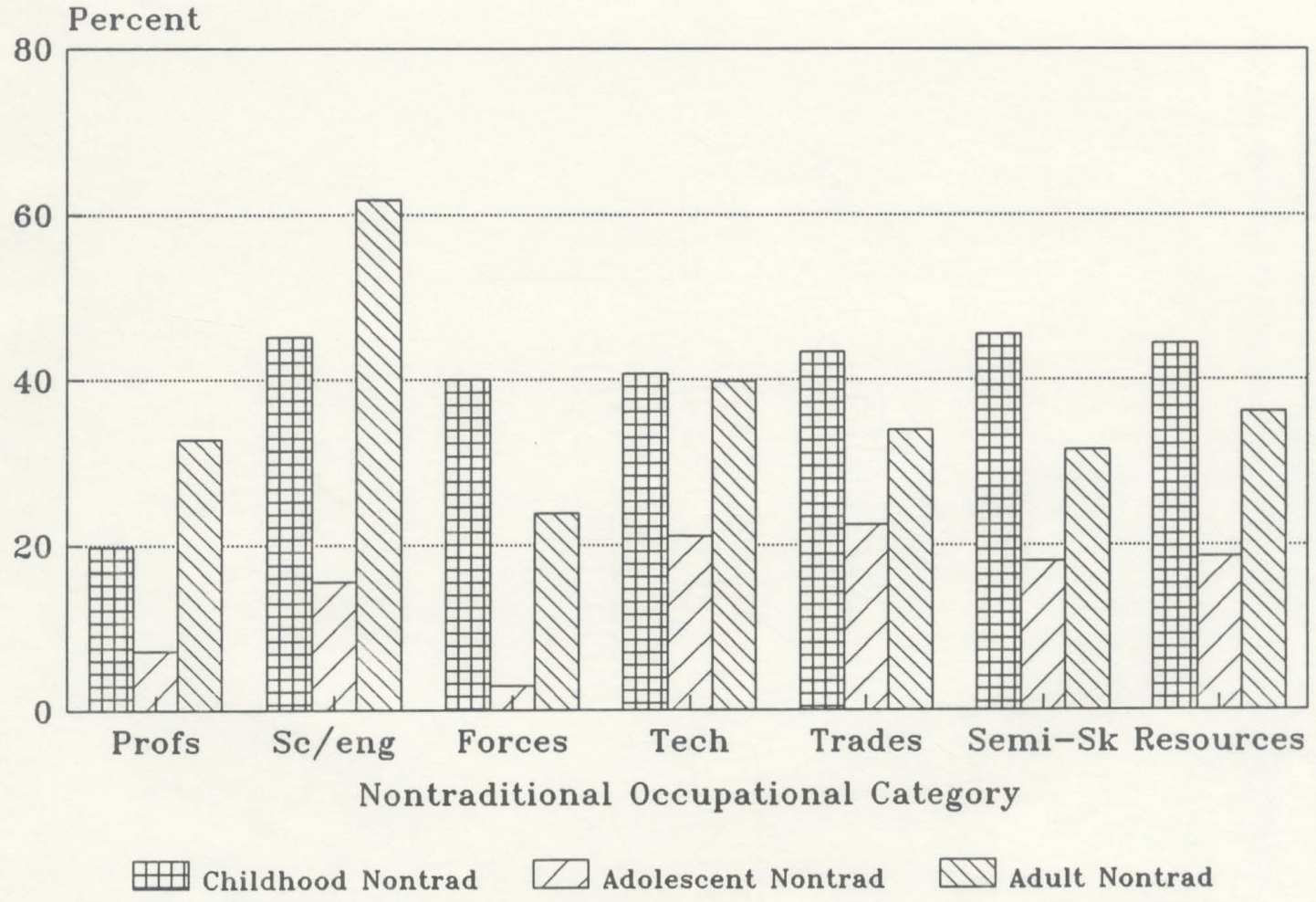


**Figure 19**
**Nontraditional work experience at three developmental levels**

third places. Trades and technology also had similar scores for fourth and fifth ranking. The resource group had the second lowest number of previous work experiences and the forces was the lowest of all groups on this variable. However, as the differences between all of the groups were very small, it can be stated that the per capita adult previous work experience for all of the groups was quite similar.

# CHAPTER 5

## CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

The purpose of this study was to investigate some of the factors related to the nontraditional career choices made by women in the Newfoundland work force and to discover what, if any, differences existed in the degree to which these factors influenced the career choices of the various groups included in the study.

The women in nontraditional careers assembled for this study were classified into seven categories of occupations based on their socio-economic ranking. These were: group I the professionals, group II the science/ engineers, group III the forces, group IV the technologists, group V the trades, group VI the semi-skilled, group VII the resource workers.

In order to organize and clarify those factors, which were important determinants in career decision making, for each of the employment categories studied, a summary of the most important results for each group is hereby presented.

### Conclusions

#### Group I - The professionals

(1) Academic self-efficacy for this group was very high whereas work related self-efficacy was more moderate.

(2) They had lower levels of aspiration, commitment and risk than the other groups.

(3) Nontraditional interests were low in childhood and adolescence, rising to a more moderate level in adulthood.

(4) The interest of both parents in the professionals was very high at all stages of development.

(5) Their parents were highly educated and had the highest rate of professional employment. The socio-economic level was high compared to the other groups.

(6) Fewer than half of their mothers worked and most of this group perceived both parents as very successful in their careers.

(7) The professionals were the most highly educated group. They had a high level of proficiency in science and math and approximately half felt a need for further study in these subjects. More of these women attended single sex schools than any other group.

(8) Although childhood interest in nontraditional careers was low, half of these women had chosen their present career by high school and they had the highest rate of early career choice as adults.

(9) Career counselling was available for most of this group but helpful to only a small percentage.

(10) Peers were of some importance to this group and

teachers/instructors very important to them. Siblings were most important to these women in adulthood.

(11) The presence of role models, was low, and male influence was moderate in adulthood.

(12) The professionals had a low rate of nontraditional work experience but a higher rate of per capita work experience.

Group II - Science/engineers

(1) Academic self-efficacy and work related self-efficacy were very high for this group.

(2) In adulthood, the level of aspiration was moderate, the level of commitment was high and the level of risk was very high.

(3) Nontraditional interests were low in childhood and adolescence, but very high in adulthood.

(4) The fathers' interest in this group rose significantly from low in childhood and adolescence to very high in adulthood whereas their mothers' interest in them was consistently high.

(5) The parents of this group were highly educated and enjoyed a fairly high socio-economic status.

(6) The mothers had a high rate of employment and both parents were perceived as highly successful in their careers.

(7) All of this group were university graduates. They

had the highest perceived proficiency in math and science at both levels and the greatest need for more courses in these subjects. Comparatively few attended single sex schools.

(8) Interest in nontraditional careers was highest of all groups in childhood and adolescent choice of present careers was also comparatively high. More than half of this group were early career choosers.

(9) Career counselling was available to more of this group than any other but helpful to only a few.

(10) Siblings and friends were of some importance to this group. Teachers were very important, coaches were somewhat important and husbands/boyfriends were very important for this group.

(11) This group had the greatest number of role models available in adulthood and had a very high rate of male influence in their lives.

(12) This group had nearly twice as much nontraditional work experience in adulthood as any other group and their per capita work experience was comparatively high.

Group III - The forces

(1) The forces had a moderate level of academic self-efficacy. Work related self-efficacy was fairly high in adolescence but highest of all groups in adulthood.

(2) These women had the highest level of aspiration in

adulthood but more moderate levels of commitment and risk taking.

(3) This group had the second lowest interest in nontraditional activities in childhood and adolescence, lowest in adulthood.

(4) Parental interest in their activities was moderate at all levels with slightly more fathers than mothers showing great interest in adulthood.

(5) Approximately half of their parents had post secondary training and a few attended university. Their socio-economic level was moderate.

(6) The forces had one of the lowest rates of employed mothers. Nearly two-thirds of this group rated their parents as highly successful in their careers.

(7) Most of these women had some university education. They reported the lowest level of proficiency in math and science and the least need for these subjects of all the groups. One-third of them attended single sex schools.

(8) Although a third of this group were interested in nontraditional careers in childhood, very few had made a commitment by adolescence. A third of the group had chosen their careers by early adulthood.

(9) Career counselling was available to more than half of this group but none of them found it helpful.

(10) Friends were important to this group at all stages,

coaches were more important in adolescence for the forces than for any other group. Husbands, boy friends were moderately important for this group.

(11) Role models were few for these women and male influence moderate.

(12) The forces had the least nontraditional work experience in adolescence and adulthood and the lowest per capita work experience as adults.

Group IV - The technologists

(1) This group indicated a moderate level of academic and work related self-efficacy at all levels compared to the other groups.

(2) The level of aspiration for these women was very high and the levels of commitment and risk were moderately high at the adult level.

(3) Nontraditional interests for the technologists were moderate in childhood and second highest in adolescence and adulthood of all the groups.

(4) Very few of their fathers were greatly interested in these women in childhood and adolescence but the majority of them were highly interested at the adult level. Their mothers were highly interested in their childhood and adult activities and less interested at the adolescent stage.

(5) About one-third of the parents of this group had

post secondary training. A few attended university. The socio-economic level appears to have been moderate.

(6) Nearly one-third of the mothers worked at the traditional occupations. A moderate number of parents were perceived as successful, with the fathers' rate slightly higher than that of the mothers'.

(7) Most of the technologists had post secondary training and twenty-five percent had some university. Approximately half of this group reported a high level of proficiency in math and science in grade school and slightly more in adolescence. About half of this group felt the need for more math and science. Very few of this group attended single sex schools.

(8) Career counselling was available for almost half of this group but was helpful to only one student.

(9) More technologists were interested in nontraditional careers in childhood than most other groups. However very few had chosen their present career in high school. Most of this group were late in choosing their present careers.

(10) Siblings and friends were important to this group at all stages. Teachers were fairly important in adolescence and adulthood. Husbands and boy friends were very important in adulthood.

(11) The technologists had few role models in childhood

and adolescence, however, male influence on this group was high in adolescence and adulthood.

(12) This group had the second highest rate of nontraditional work experience but a moderate rate of per capita work experience compared to the other groups.

Group V - The trades

(1) The trades women rated themselves low in academic self-efficacy and lowest of all groups in adult work related self-efficacy.

(2) They had high levels of aspiration and risk in adulthood and a moderate level of commitment.

(3) These women recorded a high rate of nontraditional interest in childhood, more moderate in adulthood, and highest of all groups in adolescence.

(4) Few fathers were interested in their childhood and adolescence, however, about two-thirds were very interested in their adult activities.

(5) Most of the parents of this group finished their education at the high school level. Their socio-economic level appears to have been low.

(6) The trades women had more working mothers than any other group, most of whom were employed in semi-skilled occupations. A little more than half the fathers and slightly more mothers were seen as very successful in their occupations.

(7) Most of the trades women had vocational training and a few had some university. The trades women showed the most marked improvement in proficiency in math and science from grade school to high school of all the groups. Half of them wished they had taken more math and science. Very few attended single sex schools.

(8) Career counselling was available for almost half of this group and useful for only one.

(9) This group was second highest of all groups in childhood nontraditional career choice, but lowest in adolescent nontraditional career choice and lowest also in adult choice of their present career.

(10) Siblings, relatives and friends were the most important influences in adulthood for the trades women. Teachers were not important in adolescence but in adulthood, instructors were most important. Counsellors and women's groups had some importance for this group in adulthood.

(11) The trades women had the greatest percentage of role models in childhood and one of the lowest in adolescence. The rate of male influence was moderate.

(12) This group had more nontraditional work experience in adolescence than any other group but more moderate levels in childhood and adulthood. The per capita work experience of this group was moderate.

Group VI - The semi-skilled workers

(1) The semi-skilled group had a low level of academic self-efficacy but a moderate level of work related self-efficacy.

(2) These women had a higher level of risk taking in adulthood than most other groups and more moderate level of aspiration and commitment.

(3) This group had fairly high levels of nontraditional interests in childhood and adolescence and a more moderate level of nontraditional interest in adulthood.

(4) More mothers were interested in this group in childhood and adolescence but few expressed interest in adult career choice.

(5) Approximately half of the parents of these women had grade school education. Very few went beyond high school. Most of the fathers were in semi-skilled occupations providing a fairly low socio-economic level.

(6) The semi-skilled group had the second highest rate of working mothers, and the highest rate of mothers in nontraditional occupations of all the groups. Half of the mothers and a few more fathers were perceived as successful by their daughters.

(7) More than half of the semi-skilled had post secondary training and a few had some university. Proficiency in math and science was second lowest for all

groups at both stages. Very few expressed a need for more science and math courses. One-sixth of this group attended single sex schools.

(8) Career counselling was available for approximately half of this group. However, only one person felt that counselling helped in the choice of her present career.

(9) Fewer of the semi-skilled were interested in nontraditional careers in childhood or adolescence than most other groups. Nearly one-fourth of these women were early adult career choosers.

(10) The very high influence of siblings and relatives in childhood and adolescence seems to have been replaced by the very high influence of husbands and boyfriends in adulthood. The influence of friends was very high for the semi-skilled in adolescence.

(11) The semi-skilled group reported very few role models in adolescence and none in adulthood. This group had a low rate of male influence.

(12) These women had one of the highest rates of nontraditional work experience in childhood and adolescence but one of the lowest rates of nontraditional work preference in adulthood. They also had the highest per capital rate of work experience of all the groups.

<u>Group VII - The primary resource workers</u>

(1) Academic self-efficacy and work related self-

efficacy were low for this group compared to other groups.

(2) The level of commitment for the resource group was highest of all the groups, whereas the level of aspiration was low and risk taking lowest of all groups at the adult level.

(3) Nontraditional interests were highest of all groups in childhood, moderately high in adolescence and fairly low in adulthood.

(4) Parental interest in their activities was low for this group at all stages with slightly more fathers showing interest in adult activities and slightly more mothers showed an interest in childhood activities.

(5) Half of the mothers and nearly three-quarters of the fathers of this group were grade school graduates. the remainder finished their education at the high school level. The socio-economic level based on fathers' occupations was fairly low.

(6) Approximately half of the mothers of the semi-skilled group were employed, mainly in semi-skilled occupations. Half of the fathers and slightly more mothers were viewed by their daughters as successful in their occupations.

(7) More of the resource group completed their education at the grade school level than any other group. A

similar number completed their education at the high school level. A moderate number of these women did well in math and science at both school levels, although few expressed a need for more of these subjects. No one in the resource group attended a single sex school.

(8) Fewer of the resource group had access to career counselling than any other group. It helped only two women to decide on their present careers.

(9) One-third of this group were interested in nontraditional careers as children but only two had chosen their present careers by high school. Their present careers were the first adult choice for approximately one-third of these women.

(10) Siblings had the greatest influence on the resource group in childhood compared to all other groups. In adulthood husbands and boyfriends were very important. The influence of neighbors was very high at all levels on these women. The influence of teachers was high in adolescence but non existent in adulthood.

(11) Role models were almost totally absent for this group and male influence was moderately high at all levels.

(12) The nontraditional work experience of the resource group was comparatively moderate at all stages. Their per capita work experience was second lowest compared to

the other groups.

Demographic information referred to in "implications" is presented in Table 19.

Implications for Career Decision Making

The professionals appear to have been influenced towards a nontraditional career choice by groups of factors different from those which influenced most other groups.

Academic, socio-economic and family factors seem to have had greater importance for this group than factors relating to nontraditional interests, work values, and work experience. Their very high levels of academic achievement and proficiency in math and science and their consequent high levels of academic self-efficacy may have been very important determinants in deciding on careers requiring this level of academic achievement plus the confidence in one's ability to succeed at an even higher level of academic endeavour. The high socio-economic level and the liberal attitudes of well educated parents, which formed the family background of most of the professionals, would have provided them with the wide range of options and the financial resources necessary to implement their type of nontraditional career choice. A high level of family support was evidenced by the great interest of both parents and siblings re the activities

Table 19
Demographic Information

| Background Item | Profs (83) % | Sc/Eng (47) % | Forces (21) % | Tech (52) % | Trades (24) % | Semi-Skilled (29) % | Resources (23) % |
|---|---|---|---|---|---|---|---|
| Age | | | | | | | |
| Under 25 | 4.9 | 34 | 21.1 | 38.4 | 25.0 | 32.1 | 21.7 |
| 26-35 years | 78.0 | 20.0 | 63.2 | 48.1 | 58.3 | 46.4 | 39.1 |
| 36+ | 17.1 | 15.2 | 15.8 | 13.5 | 16.7 | 21.4 | 39.1 |
| Marital Status | | | | | | | |
| Single | 28.9 | 44.7 | 61.9 | 44.2 | 45.8 | 27.6 | 21.7 |
| Married | 65.1 | 38.3 | 33.3 | 42.3 | 37.5 | 41.4 | 69.6 |
| D-S-W * | 2.4 | 2.1 | 0.0 | 7.7 | 8.3 | 20.6 | 4.3 |
| Other ** | 3.6 | 14.9 | 4.8 | 5.8 | 8.3 | 10.3 | 4.3 |
| Dependent Children | 47.0 | 19.1 | 33.3 | 40.4 | 50.0 | 72.4 | 82.6 |
| Location | | | | | | | |
| Urban | 82.7 | 73.9 | 65.0 | 38.5 | 26.0 | 42.8 | 8.7 |
| Rural | 17.3 | 26.1 | 35.0 | 61.5 | 74.0 | 57.2 | 91.3 |
| Employment | | | | | | | |
| Year Round | 100.0 | 93.6 | 100.0 | 75.0 | 33.3 | 55.7 | 30.4 |
| Seasonal | 0.0 | 6.4 | 0.0 | 23.1 | 49.9 | 40.9 | 69.6 |
| Unemployed | 0.0 | 0.0 | 0.9 | 1.9 | 16.7 | 3.4 | 4.3 |
| Employed at Present Jobs | | | | | | | |
| 12 months or less | 9.6 | 19.5 | 0.0 | 25.5 | 45.4 | 27.6 | 18.1 |
| 1-5 years | 47.0 | 54.3 | 28.3 | 45.1 | 36.4 | 48.3 | 40.9 |
| 6-10 years | 31.3 | 13.0 | 47.6 | 19.6 | 18.2 | 6.9 | 22.7 |
| Over 10 years | 12.0 | 13.0 | 23.8 | 9.8 | 0.0 | 17.2 | 18.2 |

Note: D-S-W * -- Divorced, separated or widowed
Other ** -- Other stable relationships

and careers of these women at all stages of development. This family support supplemented by the additional interest of teachers, instructors, parents' friends, and supportive husbands, may have reinforced the self concept of these women of themselves as suitable candidates for nontraditional professions. Their perception of their parents as successful career role models played an important part in career selection as did the influence of parents' friends whom these women perceived as further role models and encouragers as well as providing entry opportunities for employment.

The low levels of nontraditional interests indicated at all stages by this group may have reflected in part their urban residence as well as an academic orientation. Their low levels of aspiration and commitment in adulthood may indicate that high achievers do well in school and in many activities without using their full potential. The low level of risk may be evidence of further dependence on the family unit, related in part to the lower independence level associated with non-working mothers. Peer influence at all stages was lower for the professionals than for any other group, perhaps effectively sheltering them from peer conformist attitudes in adolescence. Their high level of aspiration in adolescence, together with the high expectations of

their families, may have been related to their high number of career decisions at this stage, to professions requiring early commitment to a high level of academic excellence.

Although the professionals had the lowest level of nontraditional work experience at all levels, and it was not as great a decision making factor as for the other groups, yet for those had this experience, it influenced them in two ways. For some, lower level jobs, such as technical assistants, or nursing aides, led to career opportunities in science and medicine. For others, their career decisions were a reaction to previous work that was uninteresting, lacking in challenge or opportunity for advancement or unsuited to their talents or personalities.

More than half of the professionals saw the necessity of further course work in math and science in their educational background. Other subjects listed as helpful were computer studies, public speaking, political science, business, French and typing.

From the data collected in this study it would appear then that the nontraditional career decisions of the professionals were influenced more from a sense of confidence in their own abilities based on high academic achievement, a high level of support from family and

school and also from all the advantages associated with a high socio-economic family background and less from a high level of nontraditional interest, values or work experiences.

The science engineers group closely resembled the professionals in many of the factors relating to their nontraditional career choice. This group also reported high levels of academic self-efficacy, educational achievement, proficiency in math and science, parental interest and support of siblings, teachers, instructors, and parents' friends. Like the professionals, the science/engineers were less influenced by the peer group than any of the other groups.

This group, however, differed from the professionals in that they had many more nontraditional factors in their background which may have influenced their nontraditional career choice. They had the highest rate of nontraditional interests in adulthood, based primarily on an interest in working with things as well as working with ideas.

The work values of high levels of aspirations and commitment were comparable to most other groups, however, the level of risk taking at the adult level was highest of all groups. The lower rate of married women in this group may explain in part their willingness to take

another job. These women also reported the highest rate of employed mothers, a fact which is also positively related to higher risk taking.

A high level of interest in nontraditional careers in childhood and adolescence indicates that for the majority of this group, their career orientation began at an early age.

Nontraditional work experience was a very important factor for this group which reported nearly twice the experience of other groups at the adult level. Respondents noted that previous work experience helped them to focus their specific career choice, increased their interest and confidence, and field experience often led directly to their career decisions.

The advice, encouragement and role modelling of their team coaches in high school were added support systems for this nontraditional group. They had the advantages of having the greatest number of role models in adulthood and the highest rate of masculine influence on their lives, of all the groups. As this group reported the lowest level of support of husbands and boyfriends, as well as peers, this masculine influence may be attributed to their father, brothers, grandfather, teachers and coaches.

It is remarkable how many of these women had to pick

up their science courses at the university level, with no high school background in these subjects. One woman wrote that "only the students who excelled were encouraged to take math and science". Another noted that "really good teachers in science and math make the difference". Others noted the value of school science fairs in promoting careers in science. Many in this group noted that for them a high level of ability in math and science was an important factor in their career decisions.

The science/engineers group appeared to have everything going for them, making them a very special group of nontraditional women. This group reported the greatest number of factors influencing a nontraditional career of all the groups. They had the positive self concept resulting from a high level of academic ability and achievement, supportive parents, siblings, teachers and parents' friends, moderate to very high levels of nontraditional work values, a fairly high rate of employed mothers, some role models, a high level of masculine influence and work experience. This great amount of support may be necessary to enable women to decide on a group of careers that are still among the most nontraditional occupational areas of all for women.

This group seemed to project the feeling that they

enjoyed their careers tremendously, that they were very confident, very energetic and very highly motivated in their careers.

The forces appear to have had the fewest nontraditional factors in their background of all the groups surveyed. In nontraditional interests, they had the second lowest ranking in childhood and adolescence and the lowest as adults. The one nontraditional interest which distinguishes this group from all others was their highest ranking on public speaking in adolescence and work that is verbal in adulthood. Since females often are assigned public relations work in the forces, an ability to perform this work may be an important decision making factor for these women and it may also be a factor in the selection process for hiring females in the forces.

The forces had the lowest level of nontraditional work experience, the lowest rate of proficiency in math and science, and the lowest rate of employed mothers. They had few role models, and peer influence which tend to be conformist, was greatest for this group at all stages of development. They reported a moderate amount of masculine influence in their lives but the influence of husbands and boyfriends was less than for any other group except the science/engineers. The educational

level and family socio-economic level of these women also appear to be in the moderate range. Many parents of this group were originally unhappy with their daughters' career decisions but eventually accepted them.

The positive influence on the nontraditional career decisions of the forces appear to be associated with a very high degree of work related self-efficacy. This group had a high degree of belief in their ability at work as teenagers and the highest degree of this belief of all the groups in adulthood. As this group had a very low level of previous work experience and seemed to have moderate to low levels of support from other sources, it is difficult to surmise the source of this confidence in their work ability. One explanation may be found in the structured systems of promotion within the forces where a high level of work ability is rewarded by visible promotion. This group also reported the highest level of aspiration in adulthood, which for them as for the science/engineers may be related to this group having also the lowest rate of married women, a fact which would increase the amount of time and mobility they would have for additional training programs. Their high level of aspiration may also indicate a particularly high level of motivation among this group. Although very few of the forces decided on their present careers in adolescence,

the high level of interest of teachers and coaches reported at that stage may also have contributed somewhat to their very high level of adult aspiration. Levels of risk were not high for this group, however, they repeatedly stated that they were looking for jobs that provided interest, excitement, thrills, adventure and challenge. The type of physical risk they sought was different from the risk of decision making surveyed by this study.

Other reasons given for the career choices of this group were direct recruitment as in media advertising, free training where university was beyond their financial means and lack of work in traditional areas.

Previous work experience for this group were often in traditional jobs within the forces and they were sometimes encouraged by their superiors to apply for nontraditional jobs as they opened up to women in the forces. For others, training for females in areas such as electronics and flying was only available by joining the armed forces. This group did not see math and science as necessary for their work but they did state a need for more courses in French and in law.

This group reported relatively traditional patterns of career decision making and for some a traditional career within the forces preceded their nontraditional

career. Thus, one has the impression that career goals did not mature the same as for the first two groups. It appears that for some, their career decisions were opportunistic rather than the result of nontraditional factors in their backgrounds.

The technologists as a group, reported moderate socio-economic and educational backgrounds for themselves and their parents, moderate levels of self-efficacy, moderate levels of commitment and risk and a moderate level of proficiency in math and science, compared to the other groups.

However, there were several factors which distinguished this group from the others and which may have been the determinants of their nontraditional career choices. They reported a high level of aspiration in adolescence and in adulthood which may have indicated a great interest in trying to improve their academic and technical knowledge at these levels. They reported fairly high levels of nontraditional interests in childhood, adolescence, and adulthood. A very high level of interest in outdoor activities from childhood onwards may have been an influencing factor towards careers in which outdoor work plays a large part. Their high interest in fixing things in adolescence and working with things in adulthood may also have influenced career

decisions in technology. The technologists also reported the highest level of masculine influence of all the groups, a factor which may have been related to their having the highest level of support by husbands and boyfriends for their nontraditional careers. This group had one of the highest childhood levels of interest in nontraditional careers, however, most of this group chose their present careers fairly late in life.

The past work experience for many of this group provided reactive influence on their career decisions resulting from work in traditional areas such as secretarial and clerking where they "couldn't stand the dullness and routine". Low paying factory or fish plant jobs brought some to the realization that further education would lead to better opportunities. The need for more interesting and challenging work was often repeated. Several observed that work experience made them aware of how much they enjoyed working in the outdoors.

This group for the most part were late career changers. Quite often it was noted that their earlier career decisions in traditional fields were made to meet the traditional expectations of family, friends, or the community in general. These women then reported that after trying traditional work they were motivated to

search for work that was more challenging and more financially rewarding. Some stated they chose these fields because the training was government funded. The lack of other employment was given as a reason for some nontraditional career decisions. Remarks such as "In Newfoundland you are lucky to get any job"; "Take what you can get"; or "The only work available" were prevalent in this group. A couple of women in petroleum technology had based their career decisions on the development of the Hibernia oil fields.

The nontraditional career decisions of the technologists may have been influenced somewhat by the lack of other employment opportunities coupled with a lifelong interest in activities congruent with careers in technology, a high level of aspiration to look for work better suited to their interests and skills and the support of the men in their lives, for careers often seen by other segments of society as inappropriate for women.

The trades group bore a remarkable resemblance to the technologists in their responses to many of the factors influencing a nontraditional career choice.

Both of these groups reported fairly high rankings on nontraditional interests, work value, work experience and nontraditional career choices in childhood. They had similar low rates of interest in adolescent

nontraditional career choices and the trades and technology groups were the latest groups to decide on their present adult career There were, however, some important differences between these two groups. The academic and socio-economic levels of the trades were somewhat lower than the technologists and further evidence of a lower academic orientation for the trades group is seen in their lower levels of academic self-efficacy and a difference in their interests particularly at the adolescent stage. Although both groups had similar rates of nontraditional interests, an analysis of these factors reveals a much lower interest in reading/ writing for the trades group than for the technologists.

A difference in support systems for these two groups was also apparent in adulthood. The support of parents at this stage was lower for the trades group as many parents were not in favour of their daughters' choice of careers in the trades. Such a choice contradicted these parents traditional ideas of a woman's role "at home with her family." As if to compensate for this lack of support, the interests of significant others including relatives, instructors, counsellors and women's groups became more important in adulthood for the trades women, than for any other group. The higher interest of these people suggests that the trades group may have sought the

support they needed, from these available sources. This group also reported nearly twice as high a rate of role models as any other group and these role models for the most were said to have been their fathers, brothers, grandfathers and other relatives.

The trades group had the highest rate of working mothers which may be related to their fairly high level of risk, a work value very important for the career decisions of these women.

The tradeswomen differed from all other groups in their keen interest in mechanics as indicated by their having the highest rankings in "fixing things" in adolescence, and "working with things" in adulthood. These two factors may have been the determining elements in influencing the career decisions of this group.

The trades group presents an enigma in which there are large unexplained increases in the data from one stage to another on three different factors. There is a significant rise in academic self-efficacy from childhood to adolescence, and a similar increase in proficiency in science and math during this same interval. Whereas, one factor may bear a relationship to the other, there does not seem to be a causative explanation for either, particularly given the low level of interest of both parents and teachers in the trades group at this time.

The significant increase in the support of instructors in adulthood over that of their teachers in adolescence constitutes the third area in which this phenomena occurs in the trades group. However, all three of these factors may have played a part in their eventual decisions for careers in the trades.

Work related self-efficacy of the trades group was one of the lowest rankings of all the groups at both levels. These results may reflect the level of unfamiliarity with the job felt by women in this very nontraditional area. However, despite these low self-efficacy results from many tradeswomen, some noted that previous experience in a man's job proved that they could do it - and do it well. Others realized they enjoyed this type of work better than traditional work.

Some of the other reasons related by this group for their late career decisions were: a lack of other employment; higher wages, direct government advertisement; and free training. One woman recounted how she watched another woman welding, when she was visiting a trades school. She was immediately struck with the thought "I can do that!" Such is the power of role models, a factor among many others which played an important part in the career decisions of this group of tradeswomen.

The semi-skilled group reported several important factors which seem to have influenced their nontraditional career choices. Early indications of a nontraditional orientation are seen in their very high levels of childhood nontraditional interests and fairly high childhood nontraditional work experience. These women also reported fairly high results on the work values of aspiration and risk. A fairly high proportion of their mothers worked which may relate positively to their high rate of risk. At the adult level this group reported the highest level of support of their husbands and boyfriends. Several mentioned that their husbands had been directly responsible for their present nontraditional occupations both in terms of encouragement and confidence building as well as presenting them with job opportunities.

This group indicated a moderate level of work related self-efficacy and previous nontraditional work experience. These factors may have helped many of these women to decide on nontraditional work. They noted that previous work experience had taught them that nontraditional work was "interesting and challenging", that they "enjoyed being outdoors, and that they could succeed at these kinds of jobs. Traditional housework jobs, on the other hand were "thankless jobs" with "long

hours and low wages".

Lack of education was given as the reason for some of their career choices. Some of them had aspired to police or military careers but had to lower their aspirations to work as security guards because they did not meet the educational requirements. Others felt they did not have enough confidence to apply.

The need for better wages to wholly or partially support their families was a prime consideration for some women. For those women employed as fish cutters, this was the only job for which training was available in their small communities. Some women took this type of work to "prove I could do a man's job"; others decided to take nontraditional work because they could not find traditional work as secretaries or bookkeepers.

The semi-skilled and resource groups were similar in their lower academic and socio-economic backgrounds than most other groups. Parental interest was also low for these groups. In the semi-skilled group several security guards said that their parents opposed their career decisions because of the possible danger for their daughters. Both of these groups were greatly influenced by their peers at the adolescent stage, a factor usually associated with conformist traditional attitudes concerning careers. The semi-skilled and resource groups

indicated that more of their members made an early adult career choice than the trades and technology groups but far fewer than the professionals and science engineers. The resource group closely resembled the forces on this factor.

The resource group indicated the highest level of adult commitment of all the groups, a work value measured in terms of willingness to work longer hours, a value very important for women engaged in the fishing and farming industries.

Although their own perception of their ability in school was low at both levels, their perceived proficiency in math and science was moderate at both school levels and their teachers interest was the highest for the resources, of all the groups. These factors may indicate, perhaps, that their ability in school may actually have been higher than they presumed that it was. The interest of their neighbours was highest for this group at all levels, indicating the kind of interdependency and community support characteristic of rural communities. The support of husbands/boyfriends was also very high for this group. According to many of the resource women their husbands were the most important people who influenced their career decisions. Often it was a joint husband/wife decision based on the need of

fisherman and farmer husbands who needed help and wives that responded to that need.

The resource group, like the semi-skilled group, showed an early disposition towards nontraditional careers in their high level of nontraditional childhood interests and work experience. Although these factors were more moderate in adolescence and adulthood, previous work experience taught these women several important things: they hated working for other people; they wanted to be their own boss and set their own hours; outdoor work was more exciting than a desk job; and they liked working with their hands.

Many of these women's lives were severely restricted by their geographic location and for many by early pregnancy and marriage. Many noted that opportunities were limited in rural communities. They chose this work because, as well as being available, it was familiar to them; they came from fishing and farming families and, although role models were mostly male, they knew what was involved in this kind of work from observation.

These women expressed a need for educational upgrading and more career information much earlier in their lives. They did not see math and science as necessary for their careers but several mentioned that bookkeeping courses would have been helpful.

Thus, the career goals of the women working in the resources seem to have been influenced mainly by several factors: a basic early interest in nontraditional work; a love of the outdoors and manual work; a need for independence; the commitment to long hours and hard work; the support of husbands and neighbours; and the career restrictions based on their rural location.

These women project the image of themselves as hard workers, willing to try anything to better their families and themselves.

## Support of Literature

The literature available on women who have made nontraditional career choices supports many of the conclusions drawn from this study.

The fairly high self-efficacy levels found by this study, in most of the groups surveyed, lends additional support to previous studies which have found a relationship between nontraditional career choice and high self-efficacy expectations.

Neville and Schlecker (1988) found that strong self-efficacy expectations are associated with increased willingness to engage in the career related activities of nontraditional occupations but not traditional ones. These findings support and extend the previous work of Betz and Hackett (1981) who related the low level of

perceived range of career options in females to an accompanying low level of self-efficacy.

The findings of the present study regarding the science/engineers and technology groups, agree with the results of a study by Lent et al (1986) which found that self-efficacy does contribute significantly to the range of career options for these groups.

The highest levels of nontraditional interests for most of the groups in this study were found at the childhood stage. These results are supported by those of a study by Standley and Soule (1978) in which they found a link between childhood masculine typed interests and adult nontraditional career choice. This link was further established by the work of Metzler-Brennan et al (1985) who found that childhood participation in sex-typed activities is associated with adult role choice.

Women who choose occupations which usually employ men, were found by Almquist (1974) to differ predictably in work values from women who select feminine occupations. The work values which most clearly distinguish nontraditionals from traditionals was the strong commitment of the former to their chosen careers and a high level of aspiration in terms of achievement abilities. Strong evidence of sex difference in work values was also found by Beutell and Brenner (1986) in

which higher levels of aspiration, commitment and risk taking behaviour were found in men than in women. The conclusion could then be drawn, that women who wish to succeed in men's work may have a better chance of success if they possess a high level of masculine typed work values. This study found that at the adult level, these nontraditional women nearly all reported high levels of aspiration and fairly high levels of commitment and risk, lending some support to the studies mentioned above.

Some studies have found a high correlation between a high family socio-economic status, and highly educated parents and nontraditional career choice as in Hennig (1970), Auster and Auster (1981), and Borman DeBrito (1986). However, in this study, these factors were found to relate only to those occupations requiring an extensive academic background as in the study of Shapiro and Crowley (1982) who found that these factors are related to higher occupational aspiration in individuals. This present study also agrees with Splete and George (1985) who found a positive relationship between family background and the socio-economic status of nontraditional careers chosen by females.

A very supportive family atmosphere, including the interest of parents and siblings, was found by Lunneberg (1982) to influence significantly nontraditional career

choice by women. This present study found a high level of interest, of the mothers of most of the groups, to be present at all stages of development, and a high level of paternal interest was found chiefly at the adult stage. The interest of siblings was found to be the second greatest source of support for these women. Fairly high levels of support was also reported, by other relatives, grandparents and husbands. The importance of choosing a supportive husband was found by Wente (1990) to be crucial to the success of women in top business positions. In this study where the necessary parental or family support was found lacking in some groups that support seemed to be provided by other sources, such as friends, neighbours, teachers, coaches, counsellors and women's groups.

A positive relationship was found by Tangri (1972) between risk taking behaviour in nontraditional women and the rate of employment of their mothers. The results of this study found similar high levels of risk and high levels of maternal employment in the trades, science/ engineers and semi-skilled groups, lending some support to the previous study.

This study attempted to determine the importance of math and science in nontraditional career choice. The results indicated, that in all of the occupations which

required proficiency in math and science, reported fairly high levels of ability in these subjects were reported. Lower levels of proficiency in these subjects were reported by the forces and semi-skilled groups, occupations for which these subjects were not as important. These findings are substantiated by Ethington (1988) who found that the number of math and science courses taken in high school was the most influential variable for women in their choices of careers in math/science fields of endeavour.

A study by Hollinger (1985) found that it was the combined influence of self perceptions of several career related abilities, rather than math/science ability alone, which differentiates traditional from nontraditionals. This finding concurs with that of the present study, in which the forces and semi-skilled groups reported low levels of math/science ability but a very high work related self-efficacy for the former group and a fairly high level of work related self-efficacy for the latter group. This self-efficacy may have been the more important career determinant for these two groups.

Auster and Auster (1981) reported in their study, that the role of the counsellor was not seen as significant and Fitzgerald-Crites (1980) found biased attitudes in many councillors. This study tends to agree

with these findings. The trades group was the only group which reported any significant amount of influence by counsellors and even then it was relatively small. Many of the respondents confirmed a negative or biased attitude by counsellors towards nontraditional careers and others reported a great lack of career information particularly in the rural areas.

The results of this study found that the majority of the professionals and science/engineers made their career decisions earlier than most women in the other nontraditional occupational groupings. This finding is supported by Standley and Soule (1974) who found that the specificity of prerequisites for professional school demand early career decision making.

In the final analysis, it would seem that there is not one career path which leads to a nontraditional career but several. There are those that are more academically based than others; there are some that demand more mechanical than academic skills; and there are those that are more people oriented than others.

However, underlying all of these more obvious differences there are some factors which appear to be common to most nontraditional career decisions, to a greater or lesser extent. Some of these factors as determined by this study are: A high level of belief in

their own abilities and/or a high level of aspiration; a background of nontraditional interests and work experience; and a high level of proficiency in math and science when required by the occupation. Most importantly, however, a solid foundation of family support from parents, siblings, husbands and the extended family seems to have been a necessary factor in nontraditional career choice. Where family support may be somewhat lacking, the support of significant others provided the essential encouragement and assistance.

## Recommendations for Programs

In order to provide this optimum type of background to a wider population of young women, and thus increase their range of career options beyond those traditionally chosen by females, the following recommendations are proposed.

### Programs for Career Guidance

The results of this study, on the availability and influence of guidance counselling, particularly in the rural areas of this province, indicate a great need for improvement in these services. It has also been found in this study that nontraditional interests are highest in childhood and lowest in adolescence. Based on this knowledge it would seem that the earlier young girls are exposed to a comprehensive program in career guidance,

the more likely it is to be successful.

It is therefore recommended that a course in career guidance should be added to the curriculum for junior high school and should be a required subject for all students. As well as being more effective at this stage the guidance program would have less competition from other subjects, as it would in high school, and it would also reach potential high school dropouts.

An unexpected finding of this study was the late stage at which so many nontraditional career decisions were made, indicating a great lack, both of career information, and decision making skills. Thus, the content and delivery of the guidance programs must be enhanced and strengthened as a means of increasing the awareness of young girls of the broad range of career options available to them and the need for early decision making and preparation for their future careers.

Programs for parents

The interest and involvement of both parents in their child's activities has been found to be one of the most important factors in nontraditional career decision making. This study has found that the interest of the mothers was high at all stages of development for most groups but not all. The interest of the fathers was noticeably lower in childhood and adolescence than in

adulthood for all groups. The type of parenting in terms of early independence training, non-stereotyped work around the home, and the attitudes, values and role models presented by the parents are all factors which combine to effect the socialization of the child. This, in turn, determines in large measure the child's perception of herself and of her place in society.

In view of the all encompassing and diverse roles expected of parents in order to provide the best environment possible for their child's development, it is recommended that a parents training program be devised and offered through the guidance departments of the schools, in order to help parents to identify and fill these various roles.

Grandparents emerged, in this study, as an unexpected but important influence in the career development of nontraditional women, particularly in adolescence when parental interest was at its lowest. It is recommended that this untapped, but important resource, be recognized and utilized as part of the support program for parents and their daughters.

Programs for schools and teachers

The results of this study have shown that different levels of opportunity are available to children from varying socio-economic backgrounds and dissimilar levels

of parental interest. It has also been determined that these two factors are of great importance in terms of exposure to a wide range of experiences and career opportunities for the students. It has also been ascertained that a high level of proficiency in math and science and other masculine typed subjects are an important prerequisite for many nontraditional occupations.

Several suggestions are therefore recommended whereby the school, through its administrators, teachers, and other staff, can endeavour to equalize these factors for all students.

It is important for schools, particularly in the more disadvantaged areas, to provide extra, regular exposure of the students to the facilities and programs offered by the community.

It is recommended that the schools develop procedures in academic and extra curricular activities to ensure the participation of girls as well as boys. This recommendation is directed particularly towards increasing female interest and participation in math, science and industrial arts as school subjects, and activities such as public speaking and team sports as extracurricular activities. Scholarships and awards specifically for girls may also increase the level of

female participation and success in these subjects.

Participation in these nontraditional subjects and activities may have the added benefits of increasing the interest and involvement of fathers in their daughters activities in childhood and adolescence as well as procuring for girls the benefits of teamwork and camaraderie associated with team sports. The increased association with nontraditional activities and increased masculine influence will help the girls immeasurably in their adjustment to the male dominated work place of a nontraditional career. The commitment to the team is an important work place value that may best be taught by coaches of team sports at the childhood and adolescent stages.

Whereas academic self-efficacy has been shown by this study to be lower for some groups than for others, it is recommended that programs be implemented in the schools to improve the students perception of their own academic performance. A change in the present system of evaluation may help effect the desired improvement. For children not able to achieve well in academic subjects, other areas must be found in which these children will experience success and the resultant boost in self-efficacy. As the tendency is usually for the brightest and most affluent students to be involved in many

activities, the disadvantaged children must be actively sought out and provided with whatever supplies and support are necessary for their participation.

Success achieved in any of the preceding areas, however small, must be recognized. Students must also be taught to use failure or partial success as a basis for personal growth and as a learning experience for the future in order to reach a high level of belief in their own abilities which is necessary for their optimum career development.

## Recommendations for Research

### Investigation of programs on self-efficacy

Recommendation was made that programs were needed to improve the level of self-efficacy in children who are low academic achievers. Studies should be carried out to devise and test a number of possible programs to help improve the self-efficacy of students, particularly girls, who seem to have lower levels of this nontraditional characteristic than boys.

### Investigation of interest

A fairly high level of nontraditional interests was found in most of the occupational groups surveyed. However, different types of interests were found to predominate in the various groups. For example, the forces were the only group really interested in public

speaking, whereas the trades group was the only group with a great interest in mechanical activities. Further research relating background influence and experiences to the development of specific nontraditional interests would be of great value in helping to understand the development of the different career paths chosen by these women.

Examination of support systems

Support systems for some types of occupations appear to be much stronger than those available for other occupations. Parental support in particular was reported as fairly low by the semi-skilled and resource groups. Further study into the family relationships of these two groups may determine the reasons behind this apparent lack of interest which may in fact be expressed differently by these parents or interpreted differently by their children. Parental support and interest would not seem to have a socio-economic basis so other factors must exist to explain this data.

Evaluation of guidance services

Guidance services in this province were reported to have been largely ineffective in counselling for female nontraditional career decision making. A study to evaluate the present guidance services in the province may determine whether or not this negative perception is

correct or whether in fact the guidance counsellor's job is so well done and in such a nondirective manner as to lead students to believe they alone are responsible for their nontraditional career decisions.

Influence of women's groups

The influence of women's groups was reported by only one group, the tradeswomen. A study looking into reasons why this was the only group influenced may result in this type of support extending to other groups of occupations. Research into the nature of the intervention; how contact was made; what goals these groups hoped to attain; and how well were they achieved, would all be of value in adding to the support necessary for women who chose nontraditional careers.

# BIBLIOGRAPHY

BIBLIOGRAPHY

Abi-Karam, N. & Love, J.C. (1984, April) Personality needs profile of some professional women. Paper presented at the Annual Meeting of the Rocky Mountain Psychological Association, Las Vegas.

Almquist, E. (1974). Sex stereotypes in occupational choice: the case for college women. Journal of Vocational Behavior, 5, 13-21.

Anger, D., McGrath, C., & Pottle, S. (1986, September) Women and work in Newfoundland. Background report, The Royal Commission on Employment and Unemployment. St. John's.

Angrist, S. & Almquist, E. (1975). Careers and contingencies: How college women juggle with gender. New York: Dunellen.

Astin, H. & Myint T. (1971). Career development of young women during the post-high school years. Journal of Counseling Psychology, 18 (4), 369-392.

Auster, C. & Auster, D. (1981, March). Factors influencing women's choice of nontraditional careers: the role of family, peers and counselors. The Vocational Guidance Quarterly, 253-263.

Avebury Research and Consulting Ltd. (1985). Marketing non-traditional jobs to girls and women. Hull, Quebec: Women's Employment Directorate; Employment and Immigration Canada.

Avebury Research and Consulting Ltd. (1986). Decade of promise: An assessment of Canadian women's status in education, training, and employment 1976-1985. Toronto, Ontario: Canadian Congress for Learning Opportunities for Women.

Ayers-Gerhard, A. (1981) Self efficacy expectations with respect to occupationally specific behaviors. Paper presented at the Annual Convention of the Americas Psychological Association. Los Angeles.

Baker, M. (1985). What will tomorrow bring? ... a study of the aspirations of adolescent women. Ottawa: Canadian Advisory Council on the Status of Women.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. Psychology Review, 84,

191-215.

Bandura, A., Adams, N., & Meyer, J. (1977) Cognitive processes mediating behavior change. Journal of Vocational Behavior, 35, 125-139

Baruck, G.K. (1972). Maternal influences upon college women's attitudes toward women and work. Developmental Psychology, 6, 32-37.

Basset, I. (1985) The Basset report: Career success and Canadian women. Don Mills: Collins.

Bauer, L., Latreille, M., Witwicki, C. (1985). Counseling women on nontraditional occupations. Ottawa: National Consultation on Vocational Counseling.

Berryman, S.E. (1985, May) Minorities and women in mathematics and science: who chooses these fields and why? Paper presented at the annual meeting of the American Association for the Advancement of Science. Los Angeles.

Betz, E.L. (1982). Needs fulfillment in the career development of women. Journal of Vocational Behavior, 20, 53-66.

Betz, N. & Hackett, G. (1981). The relationship of career-related self-efficacy expectations to perceived career options in college women and men. Journal of Counseling Psychology, 28, 399-410.

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

Bingham, W.C. & House, E.W. (1973). Counselor's attitudes towards women and work. Vocational Guidance Quarterly, 22, 16-32.

Blishen, B. & McRoberts, H. (1976). A revised socio-economic index for occupations in Canada. The Canadian Review of Sociology and Anthropology, 13, (1), 71-73.

Borg, W. & Gall, M. (1983). Educational research - an introduction. London: Longman.

Bosak Houser, B. & Garvey, C. (2985, March). Factors that affect nontraditional vocational enrollment among women. Psychology of Women quarterly, 9,(1) 105-117.

Borman, C. & Guido DiBrito, F. (1986, May). The career development of women: Helping Cinderella lose her complex. Journal of Career Development. 250-261.

Brooks, L., Holohan, W., and Galligan, M. (1985, June). The effects of a nontraditional role modeling intervention on sex typing of occupational preferences and career salience in adolescent females. Journal of Vocational Behavior, 26, (3), 264-276.

Brown, P. & Manela, R. (1978). Changing family roles: Women and divorce. Journal of Divorce, 1, 315-328.

Canadian Advisory Council on the Status of Women, (1985). The orientation of adolescent women to the future. Ottawa: Canadian Council Advisory Council on the Status of Women.

Canadian Advisory Council on the Status of Women, (1988, November). Report of the collaborative action working group on counselling. Ottawa: Minister Responsible for the Status of Women and Ministers with Labour Market Responsibilities.

Canadian Advisory council on the Status of Women, (1989, January). Dimensions of equality: an update of the federal government work plan for women. Ottawa: Government of Canada.

Canadian Advisory Council on the Status of Women, (1989 February. Participation of girls and women in math, science and technology. Toronto: submitted to the joint meting of Federal/Provincial/Territorial Ministers Responsible for the Status of Women and Provincial/Territorial Ministers Responsible for Education.

Chamberlain, V., Cummings, M. & Rensberger-Shul, K. (1985, June). A job seminar on nontraditional careers: a case study. Journal of Career Development, 316-326.

Cherpas, C.C. (1985, June). Dual-career families: terminology, typologies, and work and family issues. Journal of Counseling and Development, 63, 616-620.

Cherry, F. (1985, April). Women's experience in trades and technology. Ottawa: Employment and Immigration Canada.

Chusimer, L. (1983, September). Characteristics and

predictive dimensions of women who make nontraditional vocational choices. Personnel and guidance journal, 62, (1), 43-47.

Committee on Young Women's Issues, (1986). Growing up female: A Study of adolescent women in Newfoundland and Labrador. St. John's: Women's Department, Secretary of State.

Crites, J. & Fitzgerald, L. (1980). Toward a career psychology of women: What do we know? What do we need to know? Journal of Counseling Psychology, 27, (1), 44-62.

DiSabatino, M. (1976). Psychological factors inhibiting women's occupational aspirations and vocational choices: implications for counseling. The Vocational Guidance quarterly, 25, (1), 43-49.

Dodge, D.A. (1985). Canadian labour markets in transition: 1985-1990. Ottawa: Department of Fiscal Policy and Analysis.

Douvan, E. (1976). The role of models in women's professional development. Psychology of women quarterly. 1, 5-20.

Earhart, J.K. & Sandler, B.R., (198, January. Looking for more than a few good women in traditionally male fields. Association of American Colleges, Washington, D.C.: Project on the status and education of women.

Elton, C.F. & Rose, H.A. (1967). Significance of personality in the vocational choice of college women. Journal of Counseling Psychology, 14, 293-298.

Ethington, C.A. (1987 February). Influences on women's entry into male-dominated occupations. Paper presented at the annual meeting of the Association for the Study of Higher Education. San Diego, CA.

Ethington, C.A. & Wolfe, L.M. (1988 Summer). Women's selection of quantitative undergraduate fields of study: Direct and indirect influences. American Educational Research Journal, 25, (2), 157-175.

Fagan, M. & Ponder, A. (2983, Fall). Regional variation in occupational prestige: The case for Newfoundland. The morning watch 11 (1-2) 14-21. St. John's Memorial University of Newfoundland.

Faris, James (1972). Cat Harbour: A Newfoundland Fishing Settlement. St. John's. Memorial University, Institute of Social and Economic Research.

Farmer, H.S. (1976). What inhibits achievement and career motivation in women? The Counselling Psychologist, 6, 2, 12-14.

Fitzgerald, L.F. & Betz, N.E. (1983). Issues in the vocational psychology of women. In W.B. Walsh and S.H. Osipow (Ed.). Handbook of Vocational Psychology (pp.83-159). Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc.

Fitzgerald, L.F. & Crites, J.O. (1980). toward a career psychology of women: What do we know? What do we need to know? Journal of Counseling Psychology, 27, 44-62.

Fox, L.H. & Cohn, S.J. (1980). Sex differences in the development of precocious mathematical talent. In L.H. Fox, L. Brady, and D. Tobin (Eds.) Women and the mathematical mystique (94-111). Baltimore: John Hopkins University Press.

Galassi, M., Jones, L. & Britt, M. (1985, December). Nontraditional career options for women: an evaluation of career guidance instruments. The Vocational Guidance Quarterly, 34, (2), 124-131.

Gottfredson, L.S. (1981, November). Circumscription and compromise: A developmental theory of occupational aspirations. Journal of Counseling Psychology, 28, (6), 545-557.

Greenfield, S., Geriner, L. & Wood, M. (1980). The "feminine mystique" in male-dominated jobs: A comparison of attitudes and background factors of women in male-dominated versus female-dominated jobs. Journal of Vocational Behavior, 17, 391-309.

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

Hansen, L.S. (1974, December). Counselling and career (self) development of women. Focus on Guidance, 1-15.

Haring-Hidore, M. (1987, November). Mentoring as a career enhancement strategy for women. Journal of counseling and development, 66, 147-148.

Haring, M. & Beyard-Tyler, K. (1984, March). Counseling with women: The challenge of non traditional careers. The School Counselor, 31,(4), 301-309.

Harvey, D. & Whinfield, R. (1973). Extending Holland's theory to adult women. Journal of Vocational Behavior, 3, 115-127.

Hayes, P. (1987, August). Women and entrepreneurship. C.V.A./A.C.F.P. Journal, 23 (1), 60-63.

Heins, M., Hendricks, J. & Martindale, L. (1982, April). The importance of extra family support on career choice of women. Personnel and Guidance Journal, 60, 455-459.

Hennig, M. (1977). Career development for women executives. Doctoral dissertation, Harvard University Graduate School of Business (1970) cited in Hennig and Jardin, The Managerial Woman. Garden City, N.Y.: Anchor Press Doubleday.

Herr, E. & Cramer, S. (1984). Career guidance and counselling through the life span. Toronto: Little, Brown and Co.

Hoffman, C. & Hoffman, K. (1987, January). Does comparable work obscure the real issues? Personnel Journal, 83-95.

Holland, J.L. (1973). Making vocational choices: A theory of careers. Englewood Cliffs, N.J.: Prentice-Hall Inc.

Hollinger, C.L., (1985). Self-perceptions of ability in mathematically talented females. Psychology of Women Quarterly, 9, 3, 323-336.

Hopkins, K. & Stanley, J. (1981). Educational and psychological measurement and evaluation. Englewood Cliffs, N.J.: Prentice-Hall Inc.

Horton, J. & Walsh, W. (1976). Concurrent validity of Holland's theory for college degreed working women. Journal of Vocational Behavior, 9, 201-208.

Interim Report of the Ministerial Advisory committee on Women's Issues in Education, (1981, May). Facing our future as equals. Ottawa. Government of canada.

Jagacinski, C.M. (1987). Engineering careers: Women in

a male-dominated field. Psychology of Women Quarterly, 11, 97-110.

Kealey, L. (1985). Factors affecting women's labour force participation. St. John's: Background Report for the Royal Commission on Employment and Unemployment.

Keith, P. (1981, March). Sex role attitudes, family plans, and career orientations: Implications for counseling. The Vocational Guidance Quarterly, 29 (3), 244-252.

Krumboltz, J.D., Mitchell, A. & Gelatt, H.G. (1975). Applications of social learning theory of career selection. Focus on Guidance, 8, 1-16.

Lee, V. & Bryck, A.S. (1985, January). The effects of single sex schooling at the secondary level on student attitudes, behaviors, achievement, educational aspirations and sex-role stereotype. Cambridge, Mass.: Harvard Graduate School of Education.

Lefebre, Diane (1989, Summer). The mentor connection. Homemaker's Magazine, pp. 95-106.

Lemkau, J.P. (1983, Winter). Women in male-dominated professions: Distinguishing personality and background characteristics. Psychology of Women Quarterly, 8, 2, 144-165.

Lent, R., Brown, S. & Larkin, K. (1986). Self-efficacy in the prediction of academic performance and perceived career options. Journal of Counseling, 33, (3), 265-269.

Little, D.M. & Roach, A.J. (1974). Videotape modelling of interest in nontraditional occupations for women. Journal of Vocational Behavior. 5, 133-138.

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

Matthews, D. & Walsh, W.B. (1978). Concurrent validity of Holland's theory for non-college degreed women. Journal of Vocational Behavior, 12, 371-379.

Metzler-Brennan, E. (1985). Childhood antecedents of adult women's masculinity, femininity, and career role

choices. Psychology of Women Quarterly, 9, (3), 371-382.

Miles, R. (1983). Danger! men at work. London: MacDonald & Co.

Moran, P. (1986). Issues arising from an evaluation of the experiences of female apprentices in male-dominated trades in the Hunter region of New South Wales. Payneham, Australia: National Centre for Research and Development.

Murray, J. (1985). Women and apprenticeship in Hawaii: opportunities in nontraditional occupations. Hawaii: Honolulu Community College.

Murray, J. (1985 April). Non-traditional trends: women in blue-collar trades. Hawaii: Honolulu community College.

Nevill, D.D. & Schlecker, D.I. (1988). The relation of self-efficacy and assertiveness to willingness to engage in traditional/nontraditional career activities. Psychology of Women Quarterly, 12, 91-98.

O'Donnell, J. & Anderson, D. (1978, March). Factors influencing choice of major and career of capable women. The Vocational Guidance Quarterly, 26, 214-221.

O'Leary, V. (1974). Some attitudinal barriers to occupational aspirations in women. Psychological Bulletin, 81, (11), 809-826.

Osipow, S. (1983). Theories of career development. Eaglewood Cliffs, N.J.: Prentice-Hall Inc.

Putnam, B. and Hansen, J. (1972). Relationship of self-concept and feminine role concept to vocational maturity in young women. Journal of Counseling Psychology, 19, (5), 436-440.

Patterson, L.E. (1973, June). Girl's careers - expressions of identity. Vocational guidance Quarterly, 21, (4), 269-275.

Peters, H. and Hansen, J. (1977). Vocational guidance and career development. New York, N.Y.: MacMillan Publishing Co. Inc.

Pryor, R. (1985, June). Eradicating sex role

stereotypes: An application of Gottfredson's circumscription - compromise theory. The Vocational Guidance Quarterly, 277-282.

Psathos, G. (1968). Toward a theory of occupational choice for women. Sociology and Social Research, 52, 253-268.

Porter, M. (1983). Women and old boats: the sexual division of labour in a Newfoundland outport, in E. Garmarnikau, (Ed.), The Public and the Private: Gender and Society, London: Heinemann, pp. 91-105.

Porter, M. & Pottle, S. (1987). Women and the Economy of Newfoundland: A Case Study of Catalina. St. John's: Women's Policy Office, Government of Newfoundland and Labrador.

Report of the Royal Commission on employment and unemployment. (1986). Building on our strengths, St. John's: Government of Newfoundland and Labrador.

Roman Catholic School Board. (1983, December). Final Report - Co-education study, St. John's, Newfoundland.

Rose, H.A. & Elton, C.F. (1971). Attrition and the vocationally undecided student. Journal of Vocational Behavior, 1, 99-103.

Schom-Moffatt, P. & Broundy, M. (1989). National Survey of Women in Trades and Technology Orientation Courses. Ottawa: Department of Employment and Immigration. Government of Canada.

Schneider, F., Coutts, L. & Starr, M. (1988). In favour of coeducation: the educational attitudes of students from coeducational and single-sex high schools. Canadian Journal of Education, 13:4, 479-496.

Sholomskas, D. & Axelrod, R. (1986). The influence of mother-daughter relationships on women's sense of self and current role choices. Psychology of Women Quarterly, 10,

Smith, M.L. (1979). Counsellor discrimination based on Client sex. Journal of Counseling Psychology, 26, 270-272.

Splete, H. & George, A. (1985, September). Family influence on the career development of young adults. Journal of Career Development, 56-63.

Stake, J.E. & Levitz, E. (1979). Career goals of college women and men and perceived achievement-related encouragement. Psychology of Women Quarterly, 4,(2), 151-159.

Standley, K. & Soule, B. (1974). Women in male-dominated professions: Contrasts in their personal and vocational histories. Journal of Vocational Behavior, 4, 245-258.

Statistics Canada, (1985). Women in Canada: a statistical report. Ottawa: Minister of Supply and Services.

Stringer, D. & Duncan, E. (1985, March). Nontraditional occupations: A study of women who have made the choice. The Vocational Guidance Quarterly, 33 (3), 241-247.

Subcommittee Report of the Ministerial Advisory Committee on Women's Issues in Education. (1983). Towards equal opportunity for men and women in post-secondary education. St. John's: Department of Education, Government of Newfoundland and Labrador.

Super, D.E. (1956). The psychology of careers. New York: Harper and Row.

Swatko, M.K. (1981). What's in a title? Job aspirations and the nontraditional women. Journal of Vocational Behavior, 18, 174-183.

Tangri, S.S. (1972). Determinants of occupational role innovation among college women. Journal of Social Issues, 28 (2), 177-196.

Thomas, A.H. & Stewart, N.R. (1961)., Counselor response to female clients with deviate and conforming career goals. Journal of Counseling Psychology, 18 (4), 352-357.

Tobias, S. (1978). Overcoming math anxiety. New York: W.W. Norton.

Vetter, L. (1973). Career counseling for women. The Counseling Psychologist, 4 (1), 54-67.

Vollmer, B.M. (1983, August). Educational factors that encourage women to pursue pioneer careers. Colorado: Paper presented at the Annual Convention of the American Psychological Association. Denver University.

Wall, M.F. (1986, September). Technology: Meeting the challenge of change. St. John's. Background report submitted to the Royal Commission on Employment and Unemployment.

Walshok, M.L. (1981). Blue-collar women pioneers on the male frontier. Garden City, New York: Anchor Press/Doubleday.

Wente, M. (1990, October). Women at the top: why we need more and how to get them there. Report on Business Magazine. Toronto: The GLobe and Mail, 56-73.

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

Yanico, B.J. & Hardin, S.I. (1981). Sex role self-concept and persistance in a traditional vs. nontraditional college major for women. Journal of Vocational Behavior. 18, 219-227.

Yu, M. (1972). An exploratory study of women in traditionally female professions and the role of creativity in their career choices. Unpublished doctoral thesis, University of Michigan.

Zunker, V. (1981). Career counseling. Monterey, CA,: Brooks/Cole Publishing co.

# APPENDIX

# QUESTIONNAIRE

## SECTION 1 - BACKGROUND INFORMATION

1. a) Name and describe briefly your present main paid occupation or the nontraditional job for which you trained if you are not presently working. (Tell briefly what you do).

_____

_____

b) If this occupation is <u>not</u> the nontraditional job you trained for, explain briefly why you changed your plans.

_____

_____

2. a) Referring to your present job, do you normally work: (*Circle all those that apply*)

Year Round . . . . . 1
Seasonal . . . . . 2
When needed . . . . . 3

b) How many hours do you normally work per week when you are working? _____

c) Would you work more hours or days if the work was available? (*Circle one*)

Yes . . . . . 1
No . . . . . 2

d) How much work experience have you had in your present occupation. (*Circle one*)

Less than 6 months . . . . . 1
6 - 12 months . . . . . 2
1 - 5 years . . . . . 3
6 - 10 years . . . . . 4
over 10 years . . . . . 5

3. a) Please state your age in years _____

b) Please state your marital status (*Circle one*):

Single . . . . . 1
Married . . . . . 2
Divorced/Separated . . . . . 3
Widowed . . . . . 4
Other stable relationship . . . . . 5

c) Do you have children? (*Circle one*)

Yes . . . . . 1
No . . . . . 2

d) If yes, circle the age ranges that apply.

| | |
|---|---|
| under 5 years | 1 |
| 6 - 12 years | 2 |
| 13 - 18 years | 3 |
| over 18 years | 4 |

4. a) What was the name of the community in which you grew up? _____

b) What is the approximate population of that community? *(Circle the one that is closest).*

| | |
|---|---|
| 500 or less | 1 |
| 500 - 1000 | 2 |
| 1000 - 2500 | 3 |
| 2500 - 5000 | 4 |
| 5000 - 10,000 | 5 |
| over 10,000 | 6 |

c) If you have moved, what is the name of the community in which you are presently living/working? _____

d) Did you move to this community in order to engage in your present occupation? *(Circle one if applicable)*

| | |
|---|---|
| Yes | 1 |
| No | 2 |

5. a) What was the highest level of education completed by: (1) yourself; (2) your mother; (3) your father. *(Please circle all that apply for each person listed)*

| | Yourself | Mother | Father |
|---|---|---|---|
| No formal schooling | 1 | 1 | 1 |
| Grade school | 2 | 2 | 2 |
| Some high school | 3 | 3 | 3 |
| High school graduate | 4 | 4 | 4 |
| Vocational, trades, technical | 5 | 5 | 5 |
| Other training (Nursing apprenticeship, secretarial, etc. (specify) _____ | 6 | 6 | 6 |
| Some university | 7 | 7 | 7 |
| University graduate | 8 | 8 | 8 |
| Advanced university degree | 9 | 9 | 9 |
| Don't know | 10 | 10 | 10 |

b) Did you attend a single sex school (girls only) for all or most of your school years (Grades 1 - 12) *(Circle one)*

| | |
|---|---|
| Yes | 1 |
| No | 2 |

6. a) Name and describe briefly your father's main occupation during your growing up years.

_____

_____

b) Name and describe briefly your mother's main paid occupation if she had one at that time, otherwise mark housewife.

_____

_____

c) How successful would you rate your father and/or mother in their paid occupations? *(Circle one for each parent who had a job)*

| | | |
|---|---|---|
| Father: | Very high | 1 |
| | High | 2 |
| | Moderate | 3 |
| | Low | 4 |
| Mother: | Very high | 1 |
| | High | 2 |
| | Moderate | 3 |
| | Low | 4 |

## SECTION II

This next section will be divided into three parts:

Section A - will deal with influences on your childhood;
Section B - will deal with influences on your teen years;
Section C - will deal with your life as an adult

As you do each section, try to think back carefully about what your life was really like at each particular stage.

## PART A - CHILDHOOD

This section will deal with your life from your earliest memories, to about twelve years of age.

7. How would you rate your overall ability in school compared to your classmates? *(Circle one)*

| | |
|---|---|
| Very near the top | 1 |
| Above Average | 2 |
| Average | 3 |
| Below Average | 4 |

b) What were the subjects you did best in at this level and what was your poorest subject?

First _____

Second _____

Worst _____

12. a. Did any of the following people, other than your parents, take a special interest in your childhood activities (*Circle any that apply and indicate whether they were Male (M) or Female (F)*

| | | | |
|---|---|---|---|
| Siblings (brother or sisters) | 1 | M | F |
| Relative (grandfather, aunt, etc.) . . | 2 | M | F |
| Neighbour | 3 | M | F |
| Your friend(s) | 4 | M | F |
| Parents friend(s) | 5 | M | F |
| Other (please specify) _____ | 6 | M | F |

b. How would you rate your parents interest in your activities as a child in school and outside of school. (*Circle one for each parent)*

| | | |
|---|---|---|
| Father: | Very High . . . . . | 1 |
| | High . . . . . | 2 |
| | Moderate. . . . . | 3 |
| | Low . . . . . | 4 |
| Mother: | Very High . . . . . | 1 |
| | High . . . . . | 2 |
| | Moderate. . . . . | 3 |
| | Low . . . . . | 4 |

13. a) Did you have any regular chores as a child? *(Circle all that apply)*

| | |
|---|---|
| Housework (dishes, bedmaking, dusting, etc). . . . . | 1 |
| Outside work (cutting grass, feeding animals, etc) . . . . . | 2 |
| Maintenance (carry water, wood, garbage) . . . . . | 3 |
| Take care of younger children, old or sick people . . . . . | 4 |

Other (name and explain if necessary _____

_____

b) When you were in grade school, what did you want to be when you grew up? (*Name the occupation(s).*

_____

_____

## SECTION B - TEEN YEARS

This section will deal with approximately ages 13 - 18, the junior high and high school years. Even if you did not go on to high school or went only for a short time, please answer the questions that apply to your situation at that time.

14. a) How would you rate your ability in high school compared to your fellow students? *(Circle one - if you did not go to high school, do the (b) part of this question only).*

In the top 10% . . . . . 1
Above average . . . . . 2
Average . . . . . 3
Below average . . . . . 4

b) If you worked full-time or part-time as a teenager, rate your performance compared to your fellow workers. *(Circle one - omit this question if you did not work for money as a teenager at all).*

Extremely good at the job . . . . . 1
Better than most people my age . . . . . 2
As good as most fellow workers . . . . . 3
Not very good at the job. . . . . 4

15. Which of the following activities were you most interested in as a teenager? *(Circle first, second and third choices only).*

Reading/writing . . . . . 1
Public Speaking (acting out skits etc) . . . 2
Music (singing or playing) . . . . . 3
Knitting, sewing, crochet, etc.. . . . . 4
Outdoor activities (fishing, swimming, etc.) . . . . . 5
Fixing things (mechanical, woodwork, etc) . . . . . 6
Other (please specify) _____

16. Which of the following was most important to you as a teenager? *(Rank in order of importance - first, second, third, fourth).* Pick the one that is most important and mark it # 1, etc. - least important, # 4.

Doing well at school. . . . . _
Having money in my pocket . . . . . _
Having lots of friends . . . . . _
Being a leader of the crowd . . . . . _

17. Circle one for each of the following pairs.

AS A TEENAGER, DID YOU:

a. Make important decisions on your own . . . . . 1
Ask advice from others, such as parents, teachers or friends on important decisions . . . . . 2

b. Spend most of your time at one or two activities . . . . . 1
Participate in several activities with less involvement . . . . . 2

c. Feel you were doing your best in school or at work . . . . . 1
Push yourself harder to improve your standing at school or at work . . . . . 2

18. a) How would you rate your parents' interest in your activities during your teen years in school, sports, hobbies, etc? *(Circle one for each parent)*

| | | |
|---|---|---|
| Father: | Very high . . . . . | 1 |
| | High . . . . . | 2 |
| | Moderate . . . . . | 3 |
| | Low . . . . . | 4 |
| Mother: | Very high . . . . . | 1 |
| | High . . . . . | 2 |
| | Moderate . . . . . | 3 |
| | Low . . . . . | 4 |

b) Did any of the following people, other than your parents, take a particular interest in your activities as a teenager? *(Circle any that apply and indicate whether that person was M (Male) or F (Female)*

| | | | |
|---|---|---|---|
| Siblings (Brother, sister) | 1 | M | F |
| Other Relative | 2 | M | F |
| Teacher | 3 | M | F |
| Neighbour | 4 | M | F |
| Your Friend | 5 | M | F |
| Parents Friend | 6 | M | F |
| Coach | 7 | M | F |
| Counsellor | 8 | M | F |
| Other (specify) _____ | 9 | M | F |

c) Name the person most important person to you from this list above _____

d) Explain briefly how this person or persons influenced you (e.g. Did you admire this person? Did this person give you advice or encouragement?)

_____

_____

19. (N.B. Omit this question if you did not attend any school after Grade 8 and continue with question number 20).

a) What were the two subjects you liked most in high school and what did you like the least? (Grades 9 - 12)

First _____

Second _____

Least _____

b) What were the two subjects you did best in at this level (high school) and which was your poorest subject?

First _____

Second _____

Least _____

20. Did you have any paid jobs as a teenager? (*Circle all those that apply*)

Babysitting . . . . . 1
Paper route . . . . . 2
Shopkeeping . . . . . 3
Mowing lawns or shoveling snow . . . . . 4
Delivery person . . . . . 5
Housekeeping . . . . . 6
Fishing or farming (paid) . . . . . 7
Restaurant (waitress, cook, etc) . . . . . 8
Other (name job and explain if necessary:)

_____

21. a) Did you have a career chosen by the end of high school? *(Circle one)*

Yes . . . . . 1
No. . . . . 2

b) If yes, was it the same as your present career? *(Circle one)*

Yes . . . . . 1
No. . . . . 2

c) Was career counselling available in your school? *(Circle one)*

Yes . . . . . 1
No. . . . . 2

d) If yes, did it help you in the choice of your nontraditional career? *(Circle one)*

Yes . . . . . 1
No. . . . . 2

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## SECTION C - ADULTHOOD

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This section will deal with influences on your life from young adulthood (post high school) up until the present time.

23. How would you rate your ability to perform your present nontraditional job or the nontraditional job for which you trained compared to others who do the same kind of work? *(Circle one)*

Very High . . . . . 1
High. . . . . 2
Average . . . . . 3
Below Average . . . . . 4

24. Which of the following types of work do you prefer to do? *(Rank three in order of preference - first, second, third).* Pick the one that is most important and mark it # 1, second choice - # 2, third choice - # 3).

Working with things, e.g. crafts, mechanics, etc. . . . . _
Working with ideas, symbols, e.g. math, science . . . . . _
Work that is creative - e.g. music, art, etc. . . . . _
Working with people - e.g. teaching, community work. . . . . _
Work that is verbal, expressive - e.g. sales, politics . . . . . _
Work that is systematic, e.g. office work, banking. . . . . _

25. The following is a list of personality traits which you will use to answer the next two questions:

| | | |
|---|---|---|
| adventurous | sensitive | reserved |
| impulsive | questioning | assertive |
| sociable | independent | orderly |
| ambitious | dependable | self-confident |

a) From the list above, choose the three personality traits which best describe you during your educational and training years.

(1) _____ (2) _____ (3) _____

b) From the same list choose the three personality traits which best describe you today.

(1) _____ (2) _____ (3) _____

26. Please answer the following questions as they relate to your present career: *(Circle one for each statement).*

a) Would you take further training to advance your career?

Yes . . . . . 1
No. . . . . 2
Not at the present time . . . . . 3

b) Would you be prepared to take another job to advance your career?

Yes . . . . . 1
No. . . . . 2
Not at the present time . . . . . 3

c) Would you work longer hours to advance your career?

Yes . . . . . 1
No. . . . . 2
Not at the present time . . . . . 3

d) Would you be prepared to move to another community to advance your career?

Yes . . . . . 1
No. . . . . 2
Not at the present time . . . . . 3

27. How would you rate your parents approval of your choice of a nontraditional career? *(Circle one for each parent):*

Father:

Very High . . . . . 1
High . . . . . 2
Moderate . . . . . 3
Low . . . . . 4

Mother:

Very High . . . . . 1
High . . . . . 2
Moderate . . . . . 3
Low . . . . . 4

28. The following is a list of reasons why you may have chosen your present job. Indicate the reason that is most important (MOST) and the reason that is least important (LEAST) for you in <u>each group</u>.

A. (1) Good wages _____
(2) Opportunity to be part of a group _____
(3) Interesting work _____
(4) Opportunity for advancement _____

B. (1) Opportunity to help people _____
(2) Chance to work independently _____
(3) Good use of my skills and talents _____
(4) Good employee benefits _____

C. (1) Full employment _____
(2) Provides status and prestige _____
(3) Allows time for friends and family _____
(4) Provides a feeling of accomplishment _____

29. a) How would you rate the attitude of male co-workers towards you in your present nontraditional occupation or the nontraditional occupation for which you trained? *(Circle one)*

Very positive . . . . . 1
Positive . . . . . 2
Negative . . . . . 3
Very Negative . . . . . 4

b) Do you think you would advance further in this same occupation if you were a man. *(Circle one)*

Definitely yes . . . . . 1
Maybe . . . . . 2
Maybe not . . . . . 3
Definitely not . . . . . 4

c) Do you think there is an advantage to being a woman in your present occupation?

Definitely yes . . . . . 1
Maybe . . . . . 2
Maybe not . . . . . 3
Definitely not . . . . . 4

30. a) Which, if any, of the following people showed definite support for your choice of nontraditional career? *(Circle all that apply and indicate whether (F) female or (M) male).*

| | | | | |
|---|---|---|---|---|
| Siblings (Brother, sister) | 1 | M | F | |
| Other relative | 2 | M | F | |
| Teacher (prof. or instructor) | 3 | M | F | |
| Neighbour | 4 | M | F | |
| Friend | 5 | M | F | |
| Significant other (Husband, boyfriend) | 6 | M | F | |
| Counsellor | 7 | M | F | |
| Women's Group | 8 | M | F | |
| Other (specify) | 9 | M | F | _____ |

b) Name the person most important to you from this list above _____

c) Explain briefly how those you marked may have influenced or supported your decision?

_____

_____

31. a) Looking back, were there some educational requirements (school subjects) that you wish you had taken in preparation for your nontraditional career? *(Circle one)*

Yes . . . . . 1
No. . . . . 2

b) If yes, name the subjects and explain briefly how they would have helped you in your training or in your career.

_____

_____

32. a) List any previous work experience you have had since high school (full-time, part-time, summer or weekend jobs) and rate the usefulness of these work experiences in helping you to prepare for or decide on your present occupation.

Occupation (Job)

a) _____
Extremely helpful . . . . . 1
Very helpful . . . . . 2
Helpful. . . . . 3
No help . . . . . 4

b) _____
Extremely helpful . . . . . 1
Very helpful . . . . . 2
Helpful. . . . . 3
No help . . . . . 4

c) _____
Extremely helpful . . . . . 1
Very helpful . . . . . 2
Helpful. . . . . 3
No help . . . . . 4

d) _____
Extremely helpful . . . . . 1
Very helpful . . . . . 2
Helpful. . . . . 3
No help . . . . . 4

e) _____
Extremely helpful . . . . . 1
Very helpful . . . . . 2
Helpful. . . . . 3
No help . . . . . 4

f) _____
Extremely helpful . . . . . 1
Very helpful . . . . . 2
Helpful. . . . . 3
No help . . . . . 4

g) _____
Extremely helpful . . . . . 1
Very helpful . . . . . 2
Helpful. . . . . 3
No help . . . . . 4

b) Indicate the work experience that had the most influence on your choice of a nontraditional career and tell how it influenced you (even if it had an indirect effect on your career choice).

_____

_____

_____

33. a) Did any of the following present difficulties for you when deciding on or preparing for your nontraditional career *(Circle any that apply)*

Attitude of family member(s) . . . . . 1
Attitude of friend(s) . . . . . 2
Attitude of teacher, instructor or professor(s) . . . . . 3
Attitude of employers (work term, apprenticeship, etc) . . . . . 4
Attitude of the community . . . . . 5
No difficulties . . . . . 6
Other difficulties (specify) _____
_____ . . . . . 7

_____ . . . . . 8

b) Explain briefly how the most important of those categories marked in (a) caused difficulties for your nontraditional career.

_____

_____

_____

34. Which of the following areas do you think would be most important in increasing female participation in nontraditional occupations. *(Rank the three you consider most important. Mark first - # 1, second choice - # 2, third choice # 3).* important, # 4.

Parental encouragement . . . . . _
Non-sexist school books and curriculum . . _
Broad range of career information . . . . _
Financial aid for training . . . . . _
Female role models . . . . . _
Teacher encouragement . . . . . _
Female support groups . . . . . _
Other (specify) _____

35. a) Was your present occupation your first choice in deciding on a career as an adult? *(Check one).*

Yes . . . . . 1
No . . . . . 2

b) If no, explain briefly what circumstances, events or persons caused you to change your plans.

_____

_____