EFFECT OF A GENDER CONSCIOUS CAREER AWARENESS PROGRAM ON GRADE FIVE STUDENTS

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EFFECT OF A GENDER CONSCIOUS CAREER AWARENESS PROGRAM ON GRADE FIVE STUDENTS

by

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Abstract

The purpose of this study was to investigate the effect of a six-week, Gender Conscious, Career Awareness Program on sex-role stereotypes and career aspirations of low SES grade five students (N = 44). The study used a quasi-experimental, nonequivalent control group design to determine the effect of the treatment on seven dependent variables: sex-role stereotypes, male occupations for girls, male occupations for boys, male occupations for me, female occupations for girls, female occupations for boys, and female occupations for me. Qualitative data in the form of open-ended questions concerning hopes, worries and expectations concerning future jobs was also collected. Multivariate analysis of variance was used to assess the quantitative data and determine the effect of treatment on the seven dependent variables. Qualitative data on the open-ended questionnaire was examined according to number and type (traditional, non-traditional) of jobs chosen as hopes, expectations and worries, and the degree of elaboration provided. Results showed that there was no significant effect of treatment on the dependent variables. However, there were significant differences for gender. As well, the interaction between treatment group and gender approached significance. There were no significant changes on the open-ended questions from pretest to posttest.

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CHAPTER 1

Introduction

Statement of Purpose

The purpose of this study was to examine the effect of a program designed to counteract sex role stereotypes of elementary school children, particularly as they relate to occupational choices of women. The program was designed for Grade Five students (10-11 year olds). It took place over a six-week period with one session per week and used a multi-media approach to broaden students' knowledge of occupations and increase their awareness of sex role stereotypes. Helping students become more aware of stereotypes is believed to be the first step in counteracting them.

Significance and Rationale

In recent decades, differences associated with gender have been the focus of a great deal of research in education and great advances have been made since the 1950's in increasing the access of girls and women to education (Sutherland, 1987). Educational equity for women is an officially accepted objective in many countries, regarded as essential for the achievement of greater equity in economic, social, and domestic spheres (Organization for Economic Co-operation and Development [OECD], 1986). Yet, serious inequities persist between women and men in the work force.

Betz and Fitzgerald (1987) describe three major problems that characterize women's career development and occupational involvement:

(a) The wage gap. Despite decades of social and legislative changes a large gap still persists in earning power between women and men. The two major reasons for this gap are that women are often paid less than men for doing the same job, and that women are concentrated in low status and low paying jobs. (p. 6)

(b) Underutilization of abilities. There exists a higher level of discrepancy between women's intellectual abilities and talents and their educational and occupational achievements. Simply stated, women pursue the same career roles regardless of individual capabilities. (p. 8)

(c) Role choice or overload. Women's career planning occurs in a two stage process (Kriger, 1972, cited in Betz & Fitzgerald, 1987). First they must decide whether or not and to what extent they want to work outside the home. Then they must decide on an occupation or career to pursue. Men have a head start in this process because it is taken for granted that they will pursue a career; they just have to decide what career. (p. 10)

Regardless of their career decisions women are still primarily responsible for maintaining the home and family which leads to role conflict and role overload.

The Women's Bureau of Labour Canada in the 1990-91 edition of Women in the Labour Force highlights the following:

- Women are still segregated in the clerical, sales, and service occupations. In 1989, 57.4 per cent of the total female labour force was concentrated in these occupations. (p. 1)
- Women continue to earn, on average, less than men. In 1988 women who worked full time for the full year earned on average 65.3 percent of what their male counterparts earned. (p. 1)
- The average income of Canadians generally increases with each level of educational attainment. However, at each level men continue to achieve an income that is markedly higher than that of women. (p. 43)
- Women continue to earn degrees in traditionally female areas of study such as education, fine/applied arts, and the health profession. (p. 70)
- In community colleges women accounted for 54.6 percent of enrolment in the academic year 1988-89. They were enrolled largely in traditional fields such as the arts, humanities, and health sciences. (p. 72)

A cross-national study of sex inequalities in upbringing and in schools and colleges (OECD, 1986) found:

(a) Enrolments of girls in vocationally oriented education and training still lag behind their participation in general programmes. (p. 13)

(b) Subject choices are still markedly divided by gender and females tend to pursue those areas that are suffering declining value in the job market. (p. 23)

(c) Women are following courses in the humanities, arts, and languages, while men are predominant in the applied sciences. (p. 22)

(d) Women are now well represented in the prestigious medical faculties which are strongly associated with the feminine characteristics of nurturing. (p. 22)

(e) More indicative of change is that women have made significant inroads in law, architecture, commerce, and administration. (p. 22)

(f) Progress is also being made in those most solidly male domains of engineering and the applied sciences. (p. 23)

While this study may look optimistic, it should be remembered that social structures are slow to change and that much of the progress that has been made has been concentrated among those from privileged social classes. A person who is both female and from a working class

background faces a double handicap in trying to attain equality.

Research has suggested that sex-role stereotyping is learned at an early age (Cowan & Hoffman, 1986; Etaugh & Liss, 1992; Katz, 1986; Kuhn, Nash, & Brucken, 1978; Williams, Bennett, & Best, 1975). From birth a child's sex stimulates parents to act according to future role expectations for the child (Pomerleau, Balduc, Malcuit, & Cossetti, 1990; Rubin, Provenzano, & Luria, 1974). Furthermore, every gesture, thought, and expectation is affected by the sex of the child, as well as by the sex of the parent (Matlin, 1993; Pomerleau et al., 1990; Seavey, Katz, & Zalk, 1975; Will, Self, & Datan, 1976). Parents' attitudes and expectations are an important key to children's achievement. Studies show that parents have different expectations for boys and girls and these attitudes have a negative impact on girls' achievement and self-esteem (Eccles-Parsons, Adler, & Kaczala, 1982; Eccles, Jacobs, & Harold, 1990).

Sex roles are reinforced and solidified at school. Differential treatment of males and females by teachers is well documented. Teachers play a critical role in the transmission of sex role stereotypes through their behavior in the classroom, their assumptions about the different abilities boys and girls possess and their interactions with

students (Eccles-Parsons, Kaczala, & Meece, 1982; Martin, 1972; OECD, 1986; Sadker & Sadker, 1989; Whyte, 1984).

Such sex-typing is unconscious and most parents and teachers will proclaim that they treat children alike or will try to justify their differential treatment. Research shows clearly that this differential treatment, while seeming to favor girls, benefits boys in the long run (Sadker & Sadker, 1989; Sadker, Sadker, & Bauchner, 1984). Although girls start out ahead in most academic areas, twelve years later they have fallen behind (Sadker, Sadker, & Klein, 1986). Schools ignore girls' problems with passivity and low achievement while they remediate boys' problems with reading, learning, and behavior (Greenberg, 1985, in Sadker, Sadker, & Klein, 1986).

Gottfredson (1981) postulated that children create boundaries of acceptable jobs based on sex-type images, levels of prestige, and levels of effort to attain them and that by the age of 13 most youngsters have circumscribed their career aspirations according to these criteria. Based on Gottfredson's (1981) theory, Miller (1986) suggests that a major goal of career education in early elementary grades should be to counteract the effects of sex-based occupational circumscription. In a review of the literature, Bailey and Nihlen (1989) found that most research indicates that during the last twenty-five years there has been little change in the stereotyping of career

roles by young children. This stereotyping has a significant influence on career aspirations and choice. Recent studies show that young Canadian females are still preoccupied with being wives and mothers, and while the majority of them expect to have a career, their choices are still largely traditional (Awender & Wearne, 1990; Baker, 1985; Boak & Boak, 1989; Committee on Young Women's Issues, 1986; Women's Bureau, 1986).

The decision to use 10 year olds in this study was based on a review of the literature; however, there is not a clear consensus on the degree of flexibility at this age level. For example, Gottfredson (1981) claims that by the age of 9, children have circumscribed their range of job preferences according to sex type, and that gender self-concept is the most strongly protected aspect of the self. Furthermore, with increasing age, children's potential choices may increase but these choices become more homogeneous (Gottfredson, 1981). Also, according to Newman (1991), by middle to late elementary years children perceive a relationship between a person's behavior and her or his personality traits, suggesting perhaps, in concert with Gottfredson's view, that gender stereotyped views may operate similarly to trait inferences and be quite inflexible. However, other evidence suggests greater flexibility at this age level. Seligman and Weinstock (1991) found that 10 year olds are exploring and testing out

their interests and abilities and suggest that the verbalization of career goals is important during this period. Katz (1986) has advanced the hypothesis that sex role flexibility, as defined by preferences and tolerance for atraditionality in others may bear a curvilinear relationship to age such that later elementary grade-school children are more flexible than either younger children or postpubertal adolescents. Emmerich and Shepard (1982) and Seligman (cited in Seligman, Weinstock, & Heflin, 1991) also present data suggesting this.

This study was an attempt at making a change in the attitudes of elementary school children towards sex-role stereotyping of occupational choices. Males and females need to make career choices based on interest and ability as well as economics, and boys also need the freedom to choose a career without having to feel that it is "women's work." While the focus of this presentation is on the inequity which exists for females, it is acknowledged that males need to be given permission to choose traditionally feminine roles as well. The focus on females is deliberate for two reasons: (1) men are not oppressed to the extent that women are by job segregation, and (2) the active role seen in theory and research by the women's movement has not happened to the same extent by a "men's movement." However, it is a goal of the program that there will be an increase in boys' awareness of the changing roles of women and men in our

society as many of these boys will grow up to assume positions in which their attitudes may have a negative impact on female colleagues, as well as wives and daughters. It is acknowledged by this investigator that a program of this type may not have long lasting effects but as Judith Whyte (OECD, 1986) suggests, after adolescence young people do not feel as pressured to conform and may come back to their reserve of attitudes and behaviors which were once considered unsuitable. This program will, it is hoped, plant a seed that these children may come back to some time in the future. So, while this research is primarily concerned with female career development, it is intended to expand future possibilities for both females and males.

Definition of Terms

Sex versus Gender

Generally "sex" refers to the biological difference between females and males while "gender" refers to the sociocultural differences (Mackie, 1987). Similarly "sex roles" are distinguished from "gender roles." Child bearer is a sex role; mother is a social role. However, many researchers tend to use the terms interchangeably. For the purpose of this study, the terms "gender" and "gender-role stereotypes" will be used during the group intervention. This is because of the connotations associated with the word

"sex" to which elementary school children are particularly sensitive.

Gender Stereotype

This is a structured set of beliefs about the characteristics of women and men (Ashmore & Del Boca, 1979; Matlin, 1993), such as "men are logical"; "women are intuitive." The more commonly used term "sex-role stereotype" refers to beliefs about the roles of women and men (Ashmore & Del Boca, 1979) such as "women are nurses" and "men are doctors." These terms are often used interchangeably.

Gender-typing

People acquire "gender appropriate" skills, preferences, behaviors, personality attributes, and self-concepts through a process referred to as gender- or sex-typing (Bem, 1983; Matlin, 1993).

Traditional/Non-traditional Occupations

For the purpose of this study, the definition of non-traditional occupation is that which is used by the Department of Employment and Immigration in the Employment Equity Act (1984). This definition states that any occupation which has less than 33 1/3% females is considered non-traditional for women.

The statistics used to determine whether the occupations in the measures are traditional or non-traditional are from Census of Canada, 1986 (Statistics for Newfoundland). While some of these occupations may have changed with the 1991 statistics, this breakdown was not available at the time this study was being prepared.

Based on this definition occupations with a participation rate of less than 33 1/3% males were classified as non-traditional for males.

Neutral

Occupations were classified as neutral if the percentage of male and female workers is between 33 1/3 and 66 2/3%.

Male-dominated, female-dominated

These terms were used in the analysis of the Possible Selves Survey.

Male-dominated occupations are those that are traditional for men and non-traditional for women.

Female-dominated occupations are those that are traditional for women and non-traditional for men.

Occupations used in the Measures

Non-traditional for Women

Architect

Army Officer

Auto Mechanic

Marine Biologist

Carpenter

Chemist

Dentist

Electrician

Engineer

Farmer

Lawyer

Priest/Minister

School Principal

Physician

Physicist

Police Officer

Traditional for Women

Beautician

Dental Assistant

Elementary Teacher

Flight Attendant

Florist

Home Economics Teacher

Interior Decorator

Librarian

Secretary

Nurse

It should be noted that one item on the Possible Selves Survey was omitted from the analysis. The item "chef" was deleted from analyses because all other occupations in the survey were either male dominated or female dominated. Chef was the only item that was neutral. One item was not sufficient to designate a neutral category.

CHAPTER 2

Review of Related Literature

Introduction

In order to understand the views children have of occupational choices and the ultimate choices they make as adults, we need to consider the theory and research in these broad areas: career development theories, cognitive development and socialization, self-concept theory, and gender-typing.

Career Development Theories

Many efforts have been made to conceptualize the process of career decision making and the resulting theories seem to be in a constant state of evolution. Several researchers have attempted to classify the different models in order to facilitate discussion about them (Herr & Cramer, 1991; Isaacson, 1985; Osipow, 1983).

According to Herr and Cramer (1991), career development theories fit into five types.

1. Trait-and-factor, actuarial or matching approaches conceive of the person as an organization of capacities that are measured and then related to the requirements of occupations. (p. 157)
2. Decision theories attempt to theorize about occupational choice through the use of rational

decision models; the individual has several alternatives or courses of action, each with various costs and benefits which must be considered when making an occupational choice. (p. 164)

3. Situational, sociological, or contextual approaches portray changes from place to place and from time to time. That is, career choice is based on extrinsic factors, events, and conditions such as income level of parents or availability of jobs. (p. 178)
4. Psychological approaches stress intrinsic, individual motivation. Individuals develop certain drives or needs and seek satisfaction of them through occupational choice. (p. 190)
5. Developmental approaches are more concerned with the interactions between the individual and the environment throughout the life span. As such, they are more inclusive than other theories and more concerned with longitudinal expressions of career behavior. (pp. 207-208)

A variety of labels have been used to identify the different models of career development but it should be remembered that these models are closely intertwined and draw heavily upon one another (Osipow, 1983).

The present study can be related to a number of theoretical frameworks from career development theory. Ginzberg and his associates (1951) were early leaders in

presenting the notion that occupational choice is a developmental process that has its roots in the early life of the child and develops over time. Ginzberg, Ginsburg, Axelrod, and Herma (1951) labelled the phases of the vocational development process as fantasy (birth to age 11), tentative (11 to 17), and realistic (17 to early twenties). Gottfredson (1981) sought to integrate a variety of principles from different theories to explain how occupational aspirations develop during the preschool through college years. She theorized that the development of occupational aspirations is a process of "successive circumscription of occupational alternatives that are considered acceptable" (1981, p. 549).

According to Gottfredson (1981), the major elements relevant to choosing an occupation are gender, social class, intelligence, and vocational interests. These elements are incorporated into the self-concept at four stages of cognitive development. Gottfredson further states that as children grow older the number of acceptable occupations is progressively reduced. Stage one is orientation to size and power (ages 3-5 years), when the child grasps the concept of being an adult. Stage two is orientation to sex-roles (ages 6-8 years). This is when gender self-concept is consolidated. One realizes that one is always a girl or always a boy. Therefore, first eliminated are those occupations children perceive to be inappropriate for their

sex. Stage three occurs at 9-13 years. This is orientation to social valuation. During this stage the more abstract self-concepts of social class and ability become more important as regulators of behavior and expectations. In this phase children rule out occupations of unacceptably low prestige. They also rule out occupations requiring extreme effort to obtain, in view of their image of their ability level. The final stage is an orientation to the internal unique self (beginning around age 14). During adolescence children use their own personal interests, abilities, and values as criteria for further elimination. Choices made in adolescence are restricted to a set of occupations deemed acceptable at earlier ages according to one's sex, social class, and intelligence.

Gottfredson maintains that "people will tend to sacrifice interest in field of work to maintain sex-type and prestige, and to some extent will sacrifice prestige level for sex-type if that is also necessary" (1981, p. 572). More recently, however, researchers have tested Gottfredson's theory and have not found the same support for her hypothesis that sex-type would be most resistant to change, or that interests would be most easily compromised (Henderson, Hesketh, & Tuffin, 1988; Hesketh & Durant, 1990). While Gottfredson accepts the fundamental importance of self-concept to career development, as well as the importance of social class, intelligence, and sex as

determinants of both self-concept and the compromises people must make, as shown above, her theory may be too restrictive. That is, although sex-role stereotyping begins early in life, it is much more adaptable to change than her theory would suggest.

Significant to the field of career development is the work of Donald Super (1951, 1980, 1988). He refers to the idea of a "constellation of self-concepts, some of which may be positive and some negative" (Freeman, 1993, p. 259). Super's work highlights the importance of self-concepts to career development and focuses on three processes involving self-concepts. These are: the formation of self-concept, the translation of self-concept into occupational terminology, and the implementation of self-concept into an occupational identity. According to Super, the child's opportunities to develop self-concepts exist first in the home, then the neighborhood, church, and school, as the child learns to identify with models and explore roles. In this way the child forms an occupational image that will serve as an outlet for concepts of self (Herr & Cramer, 1992; Super, 1988).

Krumboltz, Mitchell, and Jones (1976) have developed a social learning theory of career selection. Their theory posits four categories of influencers on career decision making:

1. Genetic Endowment and Special Abilities. These qualities may include physical appearance, personal characteristics, race, sex, and intelligence.
2. Environmental Conditions and Events. These are factors which may be beyond the individual's control such as technological developments, changes in social organizations, and the number and nature of job opportunities.
3. Learning Experiences. These fall into two categories: instrumental and associative. Instrumental learning experiences are those an individual learns through the responses of others to her or his performance via reinforcement and punishment. These responses or consequences contribute to other learning experiences and eventually this leads to career planning. Associative learning experiences occur when the individual learns by observing real or fictitious models and associates a previously neutral situation with some emotionally positive or negative reaction. These associations can be learned not only through words but from films and books as well. People have a tendency to form generalizations about entire occupations from a few examples and sometimes these first associations are long lasting.
4. Task Approach Skills. These include the skills an individual has developed such as emotional and

cognitive responses, problem solving skills, mental set, and work habits. These factors largely affect the outcome of tasks and problems faced by the individual. Krumboltz et al. (1976) stress that the unique learning experiences of each individual develop the primary influences that lead to career choice.

The present study focused on upper elementary children's views of occupations. Theoretically they are still developing their "occupational selves" and need opportunities to explore and verbalize occupational possibilities. Since there is nothing in the curriculum guide in this area, this program is an attempt to fill that gap by providing learning experiences that are relevant to career development.

Cognitive Development and Socialization

Cognitive Development

During the first part of this century, cognitive development theory consisted mainly of describing what children could reasonably be expected to do at successive ages or stages. Conceptions of learning and cognition were dominated by two major traditions: behavioral learning theories and traditional cognitive theories. The behavioral tradition emphasized the role of learner as passive responder to environmental conditions, whereas the cognitive

tradition emphasized thinking and mental activity as the fundamentals of human cognitive development.

Piaget's (1951/1962, 1983) contributions to the theory of cognitive development have been massive and his theory of stages is classical. However, during the 1960's weakness in the theory became more and more apparent (Case, 1985). The concept of stage theory has been strongly linked with a genetic approach to cognitive development but research simply did not support a nativistic view (Fischer, 1983; Fischer & Silvern, 1985). Furthermore, the concept of stage, seemed to ignore important variables such as ability, emotional state, and environmental support (Fischer & Silvern, 1985). In addition, the fixed nature of these developmental stages could not be supported across cultures or across children within a culture (Fischer, 1983). Only under certain environmental conditions do children develop in a stage-like manner (Fischer & Silvern, 1985). Vygotsky's (1978) work on the importance of culture to language development was the primary basis for a reconceptualization of cognitive development and the subsequent research.

Fischer and his colleagues prefer to use the less stringent term "level," while accepting that there is evidence for some stage-like changes (Fischer, 1983; Fischer & Silvern, 1985). A level is a transactional concept for explaining the contributions of both the child and the

environment to the broad changes in children's behavior between birth and early adulthood. Fischer (1980) and Fischer and Bullock (1981) proposed a theory of cognitive development called skill theory to predict developmental sequences and synchronies in any domain, at any point in development. Skill-theory integrates the insights of the traditional cognitive-developmental approaches with the insights of the environmentally oriented approaches of behaviorism (Fischer, Hand, Watson, Van Parys, & Tucker, 1983). This theory analyzes development as a series of development levels with a set of transformation rules to specify how children learn more complex skills and thus move from level to level. Based on the work of many researchers, Fischer (1983) describes eight developmental growth spurts or levels which occur between the ages of 2 months and 16 years (see Appendix A). It is the level of Beginning Formal Operations (age 10-12 years) that this study is concerned with. During this stage the child is beginning to deal with abstract ideas such as justice, nonconformity, and personality.

Socialization

Socialization is the process by which a society teaches its children the numerous rules and categories prescribed by that society in order for its members to function competently.

Traditional theories of socialization have been based either on cognitive development theories or on social learning theories and have failed to consider the role that the developing child plays in his or her own socialization. Fischer et al. (1983) maintain that a full explanation of developing behavior requires consideration of both the child and the environment. Because skill theory (Fischer, 1980) is designed to combine the contributions of the child with the influences of the environment, Fischer et al. (1983) used skill theory to predict a general developmental sequence of social role understanding from infancy to adolescence.

Socialization theorists seem to agree that social-cognitive development proceeds through three general phases: infancy, childhood, and adolescence and adulthood. The major task of infancy is social interaction--how to take turns, how to talk to someone, how to get someone to do what you want. During childhood children learn concrete social categories and the rules associated with them; for example, traditionally in our society they learn this is how boys act, this is how girls act. In adolescence and adulthood people learn about social systems and networks.

Fischer et al. (1983) described a sequence of social role development occurring in four levels, based on research which used two roles--those relating to medical doctor and those within the nuclear family.

Level 1 is that of single social categories. This occurs by the age of 2-3 years. During this level the child realizes that he or she is an independent agent. By the age of 3 the child shows an understanding of common behavioral roles such as mother, doctor, babysitter.

The second level occurs at 4-5 years and is characterized by relations between categories. The child coordinates two behavioral roles into a social role or relationship such as doctor-patient.

Level 3 at 6 to 7 years shows an understanding of role intersections. Children are now capable of coordinating two social roles for one person with two social roles for a second person to form a system of social roles. An example would be a mother who is a doctor and a child who is her patient.

The fourth level begins as early as the age of 10 and is characterized by abstractions about social categories. Children now begin moving into an understanding of social systems and networks such as extended families. The advent of abstract thinking enables the individual to move beyond explaining behavior from observable facts to the inception of using traits, values, or social influences as a means of explaining social interactions and systems.

Each developmental level is characterized by distortions and biases which affect how children at each level comprehend and react to the pressures of

socialization. Pertinent to the present study is the development of stereotyping. People occupy multiple social categories at the same time, often with very subtle distinctions between the categories (Fischer et al., 1983). Four- to six-year-olds often miss the subtleties of differences, oversimplifying the relations between categories and in effect stereotyping social categories, as when they believe that the teacher cannot also be a mother. Another example would be equating size with age--the person who is taller must be older. Sex stereotyping is especially common among preschoolers, being well established by age five (Katz, 1986; Kuhn, Nash, & Bruche, 1978), perhaps arising from the fact that children become able to understand role relations. It appears to increase to a maximum at age seven or eight (Damon, 1977; Stangor & Ruble, 1989).

During the elementary school years, children begin showing more flexibility about gender roles, and stereotyping begins to decrease (Carter & Patterson, 1982; Tremaine, Schau, & Busch, 1982). By this age children have mastered the over-simplified role relations of a few years earlier and are moving into a new developmental level (Fischer et al., 1983). This developmental portrait of stereotyping holds only for the simplest types such as race and gender with more complex types that require abstract

knowledge of social networks developing later, such as stereotypes about religion and social class.

In spite of a decrease in sex-role stereotyping during elementary school years, recent studies show that elementary school children's occupational choices are still largely traditional (Awender & Wearne, 1990; Stockard & McGee, 1990). Based on their research, Stockard and McGee (1990) believe that these differences are not amenable to change without parallel changes in the composition of the labor force.

The literature on sex stereotyping shows that males and females are socialized differently by the family, the school, and the entire culture in which they live (Eccles, Jacobs, & Harold, 1990; Grotevant & Thorbecke, 1982) with family influence one of the most important factors in the socialization process (Astin, 1984). Eccles et al. (1990) maintain that the socialization of gender differences in children's competencies becomes a self-fulfilling prophecy which influences the type of jobs that males and females will seek out. As a result of making female-typed occupational choices, females reduce their earning potential significantly (Eccles, 1987).

The literature consistently shows that boys are more sex-stereotyped than girls, particularly in relation to occupations. Awender and Wearne (1990) found that the ratio of boys to girls choosing traditional occupations was 8:1.

In the Women's Bureau Study (1986), 32 percent of the girls selected a female-dominated occupation as their first career choice, while 93 percent of the boys chose a male-dominated occupation as first choice. Etaugh and Liss (1992) found a decrease in gender typing for girls but not for boys in elementary school, and Henderson, Hesketh, and Tuffin (1988) found that girls appear able to break away from traditional sex-role stereotypes more easily than boys. However, Stockard and McGee (1990) found that boys will more readily change their preference for other-sex occupations if these occupations have certain desirable characteristics such as high pay and high prestige. Girls were much less affected by a job's salary and importance. Stockard and McGee (1990) maintain that this sex-typing is so well established by early elementary school that attempts to counteract it will be unsuccessful. Katz and Walsh (1991) claim that merely observing others in gender atraditional behavior will not be sufficient to modify children's behavior. They will need to see the positive consequences of such behavior as well.

In her study of children from kindergarten to college, Biernat (1991) found no difference in levels of sex-typing across ages, but the attributes on which children most strongly manifest their femininity and masculinity change developmentally. For example, boys are most likely to distinguish themselves physically from girls, while girls are most likely to distinguish themselves behaviorally from

boys and these distinctions are more marked at certain ages than at others.

Conclusions

With the ability to integrate multiple social categories into complex relations, elementary school children are able to move past the distortions of earlier years and show more understanding of the social categories around them. Their conceptions of social categories move toward an accurate reflection of the realities of their society. They begin to understand concepts such as social class and wealth in a more realistic manner. It is now that complex issues of occupation, status, and sex roles are being refined (Leahy, 1981).

Although the portrait of the development of social categories presented by Fischer et al. (1983) is straightforward, it is important to realize that an individual child is not at a single level across all situations. In understanding the development of socialization, three themes are important.

First, performance is uneven, with the same child showing variations in development in different contents (Fischer et al., 1983). The social categories that children will understand at their highest level, are those emphasized by the children's families and society. A black child living in a predominantly white community is likely to have

a different understanding of race than a child who has no experience with race other than his/her own.

Second, a child will often function at different development levels as a function of the degree of structure or support provided by the environment (Fischer et al., 1983). In a classroom where a child feels accepted, he or she is likely to perform at a higher level than in an environment where the child feels rejected, perhaps being more inhibited and less inclined to take risks. Ages assigned to each developmental level by Fischer reflect the period of the first appearance of the new skill in middle-class children performing tasks designed to elicit relevant behaviors.

Third, the degree of disparity between developmental level in structured as opposed to spontaneous contexts seems to increase in the late preschool years (Fischer et al., 1983). Younger children seem driven to do their best even when the situation does not demand it. After age four, they become less likely to perform at their highest level unless the situation is structured to elicit such performance.

While cognitive development seems to be highly systematic, it cannot be understood by considering the child alone. The process by which child and environment collaborate to produce behavior is relatively new to researchers and theorists and it will be interesting to see how research in this area develops.

Self-Concept

The history of self-concept research goes back at least one hundred years to William James (1892, cited in Rosenberg, 1979/1986). During the period when behavioural psychology was in vogue, however, little attention was given to the self since it was a construct that was not observable or easily measured. With the emergence of cognitive psychology in the last fifteen years, theorists and practitioners have been paying increasingly more attention to cognitive constructions and the self has been defined as a set of cognitive representations instrumental in guiding and altering human behavior (Markus & Wurf, 1987).

Self-concept is commonly viewed as the totality of thoughts and feelings individuals have with reference to themselves as object (Markus, Cross, & Wurf, 1987). It contains representations of different aspects of the self, for example, achievements, preferences, special abilities, appearance, and temperament. Markus (1977) states that attempts to organize, summarize, and explain one's own behavior in a particular domain (e.g., independence or friendliness) results in the formation of cognitive structures about the self or self-schemata. These self-schemata are derived from past experience and serve to organize and guide the processing of self-related information contained in the individual's social experience. Once established these schemata function as selective

mechanisms which determine whether information is attended to, how much importance is attached to it and what happens to it subsequently. Over time and with repeated experiences, the individual's self-schemata become increasingly resistant to any contradictory information but they are never totally invulnerable (Markus, 1977; Markus & Kunda, 1986).

Markus and Wurf (1987) provide a comprehensive review of self-concept and describe several types of self-representations: (1) Core self-conceptions are those which are most central to the individual's identity and are most powerful in affecting behavior and information processing; (2) Possible selves are those which have not yet been realized but are hoped-for or feared, the selves one could become or the selves one is afraid of becoming; (3) The working self-concept refers to the continually active array of self-knowledge that is accessible to the individual at any given moment, being highly responsive to the particular context.

Although all aspects of the self-concept are important to forming an occupational identity, the concept of possible selves may be central to the development of a career identity for, as Markus and Nurius (1986) suggest:

> ... all of these ideas about what is possible for us to be, to think, to feel, or to experience provide a direction and impetus for action,

> change, and development. Possible selves give specific cognitive form to our desires for mastery, power, or affiliation, and to our diffuse fears of failure and incompetence. (p. 960)

An individual's self-representations have several different origins. People make inferences from their emotions, cognitions, and behavior (Harter, 1986), while other self-representations derive from the individual's attempts at self-assessment (Troupe, 1983, cited in Markus & Wurf, 1987). According to Markus, Cross, and Wurf (1990), there are at least two processes which interact to determine which characteristics become self-relevant. These are the distinctiveness of the characteristic, and the value of or response to the characteristic by significant others. For example, a child with a physical disability is distinctive and is likely to have a self-schema for that characteristic. How the parents respond to the disability (whether they are over-protective or encourage independence) will have implications for the salience of the schema within the child's self-concept. Furthermore, individuals develop self-schemas for some characteristics but not for others (Markus, 1977; Markus et al., 1982). Some individuals may be very concerned about their honesty or their creativity, and may develop elaborate schemas about themselves in these domains, whereas other individuals may be relatively aschematic in these areas. Daily social experiences are an

important source of self-knowledge and the school setting is particularly salient for children because comparison with others is constantly highlighted (Russell, Cahill, & Spain, 1992).

Developmental psychologists have studied age-related changes in self-concept and the work of Damon and Hart (1980, 1986) and Harter (1986, 1990) has been important in increasing our understanding of children's development of self-perceptions. Damon and Hart (1986) describe their developmental model of self-understanding as having four "self-as-object schemes" or levels of organization. Level 1 occurs in early childhood where the self is viewed as one's physical activities and features, group memberships and simple thoughts and feelings. At Level 2 (middle to late childhood) the self can be defined in comparison to others or to social standards. At Level 3 (early adolescence) one's characteristics are viewed in light of their impact on the self's interactions with and attractiveness to others. Level 4 (late adolescence) marks the emergence of the ability to define the self according to the self's personal, moral, or philosophical belief systems. Damon and Hart (1986) have demonstrated through longitudinal studies that self-concept develops in an orderly, predictable manner and a change in level of self-understanding is almost always to the next higher level and is ushered in by a gradual

increase in the reasoning characteristics of the higher level.

Self-theorists have also devoted a significant amount of time to identifying major functions of the self-system. These are reviewed by Markus and Wurf (1987) and include (i) providing the self with a sense of continuity in time and space, (ii) integrating and organizing experiences, (iii) regulating affective states, (iv) providing a source of incentive or motivation.

The first function relates to how people construct a "story of self." This narrative is often revised and serves as a structure to which new life experiences are attached.

The function of integrating and organizing self-relevant experiences receives support from research on information processing (see Markus & Wurf, 1987, for a review). This literature shows that individuals are differentially sensitive to self-relevant information and will selectively process such information even without being aware of it.

The regulation of affect is one of the most important functions of the self system. When individuals receive information that is incongruent with self-view and self-esteem, their affective state is disturbed and they may engage in a variety of behaviors to regulate their affect and thus protect the self-esteem. One way of doing this is to reaffirm the self by bringing into working memory

positive conceptions of the self based on past experiences (Markus & Kunda, 1986). Another way is to interact with others who will provide support for the prevailing view of the self (Swann & Hill, 1982).

Another important function of the self-system is as a source of incentive or motivation. Markus and Nurius' (1986) conception of possible selves is important in this aspect. Possible selves are those which are not yet realized. They may be vague or well-elaborated, feared, or hoped for, providing images of the self in some desired or undesired end-state. As a result of these images, the individual is moved to action. According to Day, Borkowski, Dietmeyer, Howsepian and Saenz (1992), a well developed possible self is more motivational than one that is vague. Furthermore, well developed possible selves contain several features that increase their motivational power:

> (a) Possible selves include the anticipated affective experiences associated with attaining important goals, and (b) possible selves contain the means to reach these goals. (Day et al., 1992, p. 184)

For example, an individual who imagines getting an award may also imagine the praise and admiration of family and friends, as well as the feelings of pride that this engenders (the affective experience). If the possible self is elaborated, the individual may be aware of the steps to

be taken to attain the award (the means to achieve the goal). A final characteristic of possible selves that serves to increase motivation is that hoped-for and expected selves can be balanced against feared selves (Day et al., 1992; Markus et al., 1990).

According to Markus, Cross, and Wurf (1990), focusing on a positive possible self creates a positive emotional state which the individual seeks to enhance or maintain. Through the interplay of various representations of the self in the future a plan of action is created. It is important that the individual know how to carry out the plan and monitor progress toward it as this will increase the likelihood that the goal is attainable.

Day et al. (1992) make several assumptions regarding the emergence of possible selves in children:

> (a) children are motivated by visions of themselves in future states but the more remote the end state, the less vivid the image of the possible self; (b) children may be aware of an expected end state with its resulting consequences and affective responses but may not be aware of the concrete means to their goals; (c) the availability and salience of role models, as well as the expectations of significant others and the children's own past performance are important determinants of possible selves; (d) development

> involves coming to terms with unreasonable possible selves, as well as extending one's knowledge of more plausible possible selves. (pp. 187-188)

The idea of the self-concept as a dynamic, multidimensional construct is well supported in the literature and is a critical component in mediating the actions of individuals throughout the life span. The literature on possible selves highlights the important role of educators in fostering and facilitating the development of students' future visions of themselves in society. Children need to have a fund of well developed possible selves to guide them toward choosing an occupation and they need the support of their social environment to develop the necessary skills to achieve their goals.

Gender-Typing

Children become "feminine" or "masculine" at a very early age through a process referred to within psychology as gender or sex-typing. It is through this process that the child acquires sex-appropriate skills, behaviors, preferences, and self-concepts. The importance of this process to developmental psychologists has led to the formulation of several theories which seek to explain precisely how the child becomes gender typed. The most familiar of the theories are: psychoanalytic theory, social

learning theory, and cognitive developmental theory. In recent years, a new theory of gender typing has been introduced into the psychological literature-gender schema theory (Bem, 1981; Markus, Crane, Bernstein, & Siladi, 1982; Markus & Oyserman, 1989). In order to conceptualize the issue of gender typing, the major theories are briefly described here.

Psychoanalytic

The oldest and perhaps best known of these sex-typing theories is psychoanalytic which dates back to Sigmund Freud (Bronfenbrenner, 1960; Freud, 1965). According to Freud, sexuality is all important in explaining human behavior. He describes five stages of development. These are: oral, anal, phallic, latency, and genital. The focus of sexual energy is said to shift from one region of the body to another as the individual goes through each stage.

Freud (1965) proposed that males and females develop similarly through the first two stages but at about the age of four, when they enter the phallic stage, they begin to differ from each other substantially. During this stage children focus on their genitals. Boys intensify their love for their mother and suffer from a castration complex through a fear that their genitals will be mutilated by the father. Girls have their own form of castration anxiety. When girls see the male penis they feel inferior and develop

penis envy. Since girls are already "castrated" there is no incentive to identify with the father but this conflict causes girls to fear the withdrawal of the mother's love. The problems engendered by this anxiety are partly resolved when the child identifies with the same-sex parent, thereby symbolically achieving sexual relations with the opposite-sex parent. It is the child's identification with the same-sex parent that serves as the primary means through which the child becomes sex-typed.

It should be noted that, according to Freud, for women this resolution is never fully complete as it is for men. Freud (1959) also promoted the idea that certain character traits were natural to women and other traits to men. For example, he believed that women show less sense of justice than men, and their judgements are more influenced by their feelings, whether of hostility or of affection. He did admit, however, that "the majority of men are also far behind the masculine ideal" (p. 197). It should be noted that Freud did not speak of a "masculine ideal" and a "feminine ideal." The only ideal personality, according to Freud's views, was the masculine.

Freud's contributions to the theory of human development have, unfortunately, promoted a negative view of women (Matlin, 1993) and it is no longer popular among research psychologists. Furthermore, empirical evidence simply does not support it (Jacklin, 1989; McConaghy, 1979).

Social Learning Theory

According to social learning theory, children become sex-typed in the same way they learn other socialized behaviors. This theory emphasizes the rewards and punishments that children receive for sex-appropriate and sex-inappropriate behaviors (Mischel, cited in Huston, 1983). It also emphasizes vicarious learning from observation and modelling or Associative Learning Experiences (ALEs), as described by Krumboltz, Mitchell, and Jones (1976). Individuals learn by observing both real and fictitious models in books, television, and movies. If girls are exposed to women who are in non-traditional occupations, with repeated exposure they may begin to see these occupations as possibilities for themselves. Social learning theory has particular appeal for feminists because it postulates that the phenomenon of sex-typing is learned and therefore is neither inevitable nor unmodifiable (Bem, 1987). However, it still does not completely explain how children acquire gender-typed attitudes and behavior (Matlin, 1993).

Cognitive-Developmental Theory

The basic assumption of this theory is that sex-typing follows naturally and inevitably from universal principles of cognitive development. Kohlberg (1966) used the cognitive development theory of Jean Piaget to explain how

children acquire gender roles. According to Kohlberg, the first major step is gender identity: the child realizes that she or he is a girl or a boy. This happens by the time the child is 3 years old. The next step is gender constancy: the child realizes that a person's gender does not change, in spite of changes in outward appearance or behavior. Cognitive-development theory focuses on the child as the primary agent of her or his own sex-role socialization and postulates that the child, realizing what gender she or he is, then comes to value those behaviors which are seen as similar to the self in terms of gender (Lewis & Brooks-Gunn, 1979). Most adherents to this theory believe that the young child will naturally develop both a gender-based self-concept and a gender-based value system even without external pressure to behave in a sex stereotyped manner (Bem, 1987).

While cognitive-developmental theory has been very influential (Bem, 1987), more recently psychologists and sociologists have questioned it. One of the main criticisms is that children often show gender-stereotypical behavior well before the age at which they are said to have acquired gender identity and gender constancy (Matlin, 1993). Furthermore, it does not explain why children use sex as an organizing principle (Bem, 1987) nor does it account for the variation in girls' acquiescence and resistance to gender-typing (Matlin, 1993).

Newer theories of gender-typing usually build upon a combination of social-learning theory and cognitive-developmental theory. One such theory is Bem's (1981) gender schema theory.

Gender Schema Theory

Bem's (1981) gender schema theory has features of both the cognitive developmental and the social learning accounts of sex-typing. Like cognitive developmental theory, gender schema theory proposes that sex-typing is mediated by the child's cognitive readiness to organize information according to the culture's definition of masculine and feminine. Like social learning theory, gender schema theory assumes that sex-typing is learned and, consequently, is neither inevitable nor unmodifiable.

A schema is a cognitive knowledge structure that organizes and guides an individual's perception. It functions as a readiness to search for and to assimilate incoming information in schema-relevant terms. Thus, gender-schematic processing involves sorting attributes and behaviors into masculine and feminine categories regardless of their differences on a variety of dimensions unrelated to gender, for example, placing items like "gentle" and "kitten" into a feminine category and items like "tough" and "eagle" into a masculine category.

Gender schema theory proposes that sex-typing is the result of the individual's readiness to process information in terms of gender and ultimately to blend her or his own self-concept into the gender schema. Children do not simply learn which attributes are linked to their own sex but that the attributes themselves are differentially applicable to the two sexes. Adults rarely remark upon how strong a little girl is or how pretty a little boy is. Children learn to apply this same schematic selectivity to themselves and thus their self-concepts become sex-typed and their behavior is regulated to conform to cultural definitions of femaleness and maleness.

Bem (1987) states that an important feature of gender schema theory is that it is a theory of process, not content. Sex-typed individuals process information and regulate their behavior according to their culture's definition of femininity and masculinity and it is this process of dividing the world into feminine and masculine categories, not the content of the categories, that is central to gender schema theory.

Markus et al. (1982) presented a self-schema model of sex-typing. According to their theory, there are certain elements of behavior that are so central to the self that almost everyone develops schemas for them. One such dimension is one's sex, and Markus et al. (1982) describe variations in how gender is represented in the self-concept.

Feminine schematics have incorporated many feminine attributes into their self-concept, while masculine schematics have incorporated masculine attributes. However, their research has shown that there are some people who are aschematic with respect to gender (Markus et al., 1982). Individuals that are described as high androgynous appear to have incorporated both feminine and masculine schemas into their self-concepts, whereas low androgynous individuals are considered to be aschematic, having little or no self-knowledge structures of feminine or masculine attributes.

The literature on gender differences shows clearly that early gender-role training within the family, the school, and the community instills the gender-role stereotyping that is so prevalent in our society.

Related Research

A great deal of attention has been given in recent years to finding ways to integrate women into non-traditional career fields. Related resource materials have been developed for use with all age groups from kindergarten to college (see Posen & Novogradsky, 1990). Much less attention has been given to empirical research, particularly at the elementary and junior high school levels. Therefore, given the paucity of research, studies will be reviewed here at both the elementary and the junior high levels.

Keefe (1985) tested the effect of a seven week, sex-fair career guidance program on ninth grade girls' level of sex-typing of occupations, degree of sex-role stereotyping, and level of career aspirations. The design was a nonrandomized, experimental-control group. Subjects were between the ages of 13 and 15, and primarily of working class families. Treatment consisted of seven 45-minute sessions using a film, small group discussions, and female guest speakers working in male-dominated areas. The instruments consisted of: an occupational checklist in which subjects had to determine the suitability of the occupations for men and for women; a sex-role stereotype survey; and an occupational daydreams instrument in which subjects were asked to list eight occupational daydreams. Two posttests were administered, one at week seven and the other, six months later. Results of the first posttest showed that the experimental group became significantly more liberal in their occupational sex-typing (occupational checklist), sex-role attitudes (sex-role stereotype survey), and career aspirations (occupational daydreams), than the control group. Results of the delayed posttest showed no significant difference, due to an increase in the scores of the control group.

Sullivan (1975), employing a non-randomized experimental-control group design, attempted to modify girls' perception of occupational stereotypes and level of

career aspirations through a five session film program. Subjects were ninth grade, low SES females. Prior to and following the program subjects were asked how appropriate it would be for a woman to enter specific female-dominated, male-dominated, and neutral occupations, and to specify their choice of careers. The intervention was found to be effective in developing more positive attitudes about the appropriateness of male-dominated occupations for females, but only for those occupations included in the study. It seems that the students did not make inferences about occupations not included in the treatment.

Brooks, Holahan, and Galligan (1985) explored the effects of a non-traditional role-modeling career intervention program on vocational preferences and exploration, and career salience of adolescent girls in early ($\underline{M}$ = 13.3 yrs.) versus middle adolescence ($\underline{M}$ = 16.12 yrs.). There was no information on SES for this study. Subjects were randomly assigned to an experimental or a control group. Treatment consisted of five, 45-minute, once-per-week group sessions that included slide presentations, information and discussion sessions, and vicarious modeling (students imagined themselves in their ideal career). The pre-post instrument consisted of an occupational checklist, a life-style index, and a vocational exploration checklist. On the occupational checklist subjects were asked to check "might choose" or "would not

choose" on a list of non-traditional, traditional, and neutral occupations. Results showed no significant effects of the intervention on the sex-typing of occupations or career salience for either age group. Brooks and her colleagues concluded that either females' sex-typed views of occupations are remarkably robust or else effective interventions have not been determined.

Wilson and Daniel (1985) used seventh- and eighth-grade girls and boys in their study on the effectiveness of a career options workshop in modifying sex-role stereotyped attitudes. No information was provided on SES of the subjects. Treatment consisted of five sessions which focused on females in male-dominated occupations, sex stereotypes, and exploration of subjects' interest in non-traditional occupations for themselves. Subjects were randomly assigned to an experimental or a control group. The instrument used in the pretests and posttests was the Stereotype Survey developed by Wilson and Daniel (1981). Results indicated that the workshop was effective in altering traditional sex role attitudes of the experimental group. It should be noted that this study was not intended to broaden career options, but to change sex stereotyped attitudes.

Vincenzi (1977) investigated the effects of exposing sixth-grade children to the concept of working in non-traditional occupations. His subjects were white, middle

class boys and girls in three different schools. To eliminate possible problems from interaction, one of the schools had a control group only, while the other two had an experimental and a control group. Vincenzi's treatment consisted of two 30-minute sessions per week for 10 weeks. During the sessions the children reviewed and discussed magazine articles concerning women in male-dominated occupations. They discussed definitions of stereotypes and identified stereotypes of different kinds. There were seven female guest speakers who were employed in non-traditional occupations. Vincenzi's instrument consisted of 24 statements followed by the same two questions: "Could a man work here? Could a woman work here?" Slides were used to portray each occupation. Results showed that the treatment had a significant effect on increasing non-traditional choices for the experimental group.

In a more recent study Savenye (1990) investigated the immediate and delayed attitudinal effects of presenting ninth-grade students with career information and role models in two media forms, slide/tape and print. Students were randomly assigned to the two treatment groups and a control group. The instrument used was an occupation survey in which subjects were asked to rate each job as suitable for "men," "women," or "both men and women." Sex-typed attitudes toward non-traditional careers were influenced on an immediate basis by both the slide/tape and the print

form. However, the attitude change did not generalize to careers not directly presented. Furthermore, the attitude change did not persist over an eight-day period when a second posttest was administered. It should be noted that this was a one-session intervention and the main factor under investigation was the medium used to present the career information.

Researchers are now beginning to look more at the self-system and children's personal visions of themselves. The work of Estrada (1990) and Day et al. (1992) has attempted to enhance students' awareness of the kinds of jobs they might expect to have some day and to relate their school work to their choice of jobs. Estrada and Day and their colleagues have developed a training package to be used by teachers with elementary school students. The program called Possible Selves was run twice a week in one-hour sessions for five weeks. It included a variety of activities and focused on providing students with the opportunity to enact different jobs and then discuss what they liked and disliked about the jobs. Another component was the "Possible-Me Tree," an activity designed to motivate students to work toward their highest goals and to avoid feared outcomes. The program was also intended to enhance students' self-efficacy through encouraging the attitude that students can realize their personal goals through their own effort.

The researchers claim modest success in developing students' future visions of themselves. However, they report less success in modifying feelings of self-efficacy.

As this review shows, a variety of methods have been employed to expand children's ideas about working in non-traditional fields and to assess the results of the treatments. Based on the literature regarding sex stereotypes of males and females about occupations, one can see that studies using females only would be more likely to change in the intended direction since there is more pressure on boys to avoid opposite-sex choices (Tremaine, Schau, & Busch, 1982).

There are a number of difficulties not addressed in the studies reported here. For example, studies such as Vincenzi's (1977) which asked subjects to rate occupations for men and for women, are also more likely to have a positive effect since they do not personalize the occupations for the subjects themselves. There is a distinction between tests which measure knowledge or awareness of sex stereotypes and those which measure endorsement of the stereotypes, although this distinction has not always been made in the literature (Kelly & Smail, 1986). That is, what one endorses as acceptable in an abstract sense may be quite different from personal endorsements and further, quite different from what might be enacted behaviorally.

The present study attempted to modify not only which occupations children see as appropriate for men and for women but for themselves as well. The measure developed for this study provides a means of separating children's general attitudes about sex-appropriate occupations from their personal occupational choices.

A second issue not addressed in the studies reported to date is that of effecting more enduring changes as shown by Keefe (1985) and Savenye (1990). The importance of ongoing environmental support is an area which needs consideration in research of this nature, and in considering school based programs. The confines of the present study also did not allow incorporation of this factor, but this issue is addressed as part of the long-term goal of incorporating career concerns within the broader school curriculum.

Conclusion

This review of the literature shows the inter-relationship among self-concept, cognitive development, and socialization in forming an occupational identity. It points out the complexity of gender typing and the subtle way in which attitudes about gender pervade our society. The literature also offers hope. Children's attitudes are modifiable. But there is a great need for awareness about the negative impact of gender role stereotyping on males, as well as females. Educators of children and young

adolescents, in particular, need to be aware of this issue. Elementary classrooms are highly sex segregated for study and play (Lockheed, 1986) and since sex segregation is both a cause and an effect of gender stereotypes, the very fact that we separate the sexes for different activities implies differences between them and reinforces stereotypes that have their greatest negative impact on females (Eccles, Jacobs, & Harold, 1990).

The importance of the school system in counteracting stereotyped thinking is obvious. There is a tremendous need at this time for more career awareness and for children to be exposed to a variety of experiences and role models. Young people are very much aware that women can do men's work and vice versa but young women are still choosing traditional jobs (Canadian Teachers' Federation, 1990). Their general ideas have changed but the changes must go deeper in order to become self-relevant. This will require changes in the labor force and in society in general as Stockard and McGee (1990) maintain, but we must start somewhere and school is the obvious place to begin.

CHAPTER 3

Methodology

Design of the Study

This was a quasi-experimental study that utilized a pretest-posttest, nonequivalent control group design (Gay, 1987). Subjects were not randomly assigned to groups because of difficulties with scheduling. Two of the three Grade Five classes were randomly selected for the study. While initially random selection of groups was applied, due to teacher preference, the class selected as the experimental group became the control group. Therefore, treatment was not randomly assigned to groups.

Research Hypotheses

1a. The Experimental group will manifest statistically significant decreases ($p < .05$) in sex-role stereotypes as measured by Wilson & Daniel's (1981) Stereotype Survey.

1b. The Experimental group will manifest an increase in the number of non-traditional occupational possible selves for girls, boys, and themselves, as measured by the Possible Selves Occupational Survey.

2a. Males will show significantly more sex-role stereotypes on the Stereotype Survey than females. However, it is

expected that the interaction with the treatment effect will modify this.

2b. Males will view a significantly fewer number of nontraditional jobs as possible for girls, boys, and themselves than females on the Possible Selves Occupational Survey.

3. The Experimental group will manifest statistically significant increases ($p < .05$) in the number and elaboration of possible selves, both hoped for and expected for themselves, *from* pretest to posttest on the open-ended questions of the Possible Selves Occupational Survey. It is also expected that type of jobs will change in that significantly more nontraditional jobs will be listed on the posttest.

Subjects

The subjects for this study were two Grade Five classes in an Elementary school under the Roman Catholic School Board for St. John's during the 1992-93 academic year. The classes the students were assigned to were heterogeneously grouped.

Setting

The research for this study was conducted in a school with approximately 500 students from Kindergarten to Grade Five. The school is located in a city with a population of

100,000 in an area where it would be considered an "inner-city" school.

Instruments

The instruments used in this study, both before and after the experimental intervention were: the Stereotype Survey (Wilson & Daniel, 1981) and the Possible Selves Occupational Survey which was modified from a measure used by Estrada (1990) and Day, Borkowski, Dietmeyer, Howsepian, & Saenz (1992) in their Possible Selves program. In addition, the Possible Me Tree activity adapted from the Possible Selves program was used with the Experimental group only, as part of the intervention to collect additional information from the children at the beginning and the end of the treatment.

Stereotype Survey (Wilson & Daniel, 1981; Appendix C)

Wilson and Daniel (1981) developed a stereotype survey in order to evaluate whether stereotypes held by middle school students toward sex roles, particularly as related to occupations, could be influenced by a workshop program. The survey was constructed to measure attitudes towards roles of males and females using items which required minimal reading skills and which would be relevant to middle school students (grades seven and eight). Items addressed both the general

roles of males and females and the roles of men and women in the world of work.

The 25 items were examined by Wilson and Daniel (1981) and by a selected group of middle school English teachers for the purpose of determining face validity. Construct validity was established through correlation of the Stereotype Survey with the Attitudes Toward Women Scale (AWS). The AWS is a 25 item scale developed by Spence, Helmreich, and Stopp (cited in Wilson & Daniel, 1981) to measure attitudes towards women. The AWS is used currently as the standard for establishing validity among instruments measuring attitudes towards sex-role expectations.

Wilson and Daniel's (1981) Stereotype Survey has a correlation of .75 with the AWS. This indicates that the Stereotype Survey addresses attitudes similar to those measured by the AWS. An estimate of the reliability of the Stereotype Survey was obtained by Wilson and Daniel using the Kuder-Richardson formula 21, which is a measure of the internal consistency of the survey material. This resulted in a coefficient of .88.

The Stereotype Survey appears to exhibit good construct validity and good internal reliability. Its effectiveness has been demonstrated in several studies similar to the proposed one with seventh and eighth grade students. Because the subjects for the present study are in Grade Five, and a search of the literature showed no instruments

of this type for this grade level, the survey was submitted to an experienced Grade Five teacher for inspection, and it was judged to be readable and understandable for students in Grade Five. As a further check, the researcher read each item to the students as they completed the survey.

Possible Selves Occupational Survey (Appendix C)

This instrument was modified from one used in the Possible Selves program (Estrada, 1990) which was designed to increase the range and clarity of students' hopes and fears, particularly as they relate to academic and occupational achievement. The program was used on fifth and sixth grade, low achieving Mexican American students of average to slightly below average IQ who were about 2 years below in reading level but not diagnosed as reading disabled. According to Markus (Markus et al., 1990; Markus & Nurius, 1986), visions of oneself in the future ("possible selves") motivate present behavior. These visions include hoped-for selves ("me as a rock star"), feared selves ("me as a bag lady") and expected selves ("me graduating from high school"). Thus, possible selves motivate individuals to work to realize their hopes and expectations and to avoid their fears. Day et al. (1992) suggest that a vivid and well developed possible self is more motivating than one that is vague or poorly articulated and Seligman et al.

(1991) stress the importance of having 10-year-olds verbalize career goals.

The original questionnaire was in three parts. The first section assesses students' knowledge about the relationship between school, achievement, and occupations. Since this is not the focus of the present study, this section was omitted.

In the second section subjects are asked to list jobs that are hoped for, feared, and expected for themselves. Subjects are then asked to think of themselves in a job under each of those headings and answer several questions related to each job, such as "Where are you?" and "What are you doing?" This section was later modified by Day et al. (1992) and instead of asking students "What jobs are you afraid you might have in the future?" the question was "What jobs are you worried you might have in the future?" This format was used in the present study to ensure that children would not list jobs they were afraid of because of risk or danger. The intention was to have them think of jobs that might be possibilities but which they hope to avoid.

Part three of Estrada's questionnaire contained a list of 27 occupations. Subjects were requested to consider which jobs were possible for themselves because they are a boy or a girl (not at all possible for me, might be possible for me, very possible for me). This section was modified in order to separate what children think is possible for girls

and boys in general from what they think is possible for themselves. Consequently, subjects were asked to rate each occupation according to how suitable it is for a girl, for a boy, and for themselves. In order to further simplify the format the ratings used were "yes," "maybe," and "not at all" (see Appendix C).

The Possible Selves program (Estrada, 1990) used a metaphor, the Possible-Me Tree to make concrete the idea that we all want to be strong individuals with many options (i.e., to have sturdy trunks and lots of leaves). The four branches of the Possible-Me Tree represent four important areas of life: family and friends, free time, school, and work. In addition, the Possible-Me Tree has leaves of two colors (green and red) representing hopes and fears respectively. This activity was completed by the experimental group only, as part of the treatment, and answers were analyzed to see if there were any changes with respect to type and number of hopes, fears, and expectations from pretest to posttest.

Group Intervention Treatment

The experimental treatment in this study involved participation in a six session program designed to broaden career aspirations and reduce sex role stereotypes related to jobs. The program sessions were 50 minutes long with one

session per six-day cycle, held during health period. The control group continued with their regular health lesson.

The general focus of the program was to broaden subjects' ideas about careers and about "women's work." A multi-media approach was used and included films, discussions, art work, and guest speakers. The guest speakers were young women involved in non-traditional careers in the St. John's area. These people were selected so that students would be able to identify with them as being real possibilities for themselves. A detailed description of the program is in Appendix B. The following is a schedule of the Pretest, Treatment, and Posttest as conducted. All measures and sessions were delivered by the researcher.

Gender Conscious Career Awareness Program

Pretest:
1. Stereotype Survey;
2. Possible Selves Occupational Survey;
3. Possible-Me Tree (Experimental group only)

Session 1

Introduction

Possible-Me Tree

(Adapted from Estrada, 1990)

Session 2

Career Awareness

(Adapted from Watts, Bernard, Glasgow, Foley, & Wrigley, 1981)

Session 3

Gender-Role Stereotypes

(Adapted from One Step at a Time, 1984; and Estrada, 1990)

Film--The Fable of He and She (Noyes, 1975)

Session 4

Guest: Firefighter

Film Clip: Wise Choices (Halfyard, 1990)

Session 5

Guest: Marine Biologist

Session 6

Summary/Possible-Me Tree

Posttest: 1. Stereotype Survey
2. Possible Selves Occupational Survey

Session One

Introduction--The purpose of the program was explained to the students. They were told that during these sessions they would be learning about the different kinds of jobs people have and that they would begin thinking about the kinds of things they might like to do when they are grown up.

The second part of the session consisted of the "Possible Selves Tree" (adapted from Estrada, 1990). Each

student was given a large sheet of paper with the outline of a tree on it, with four branches. The tree represents the student and the branches are different areas of the student's life--school, relationships (friends and family), jobs, and free time. Students were asked to write two hopes for each area, as well as two fears, or things they worried about or wished to avoid. Examples were provided by the examiner. The hopes and worries were written on green and red leaves, respectively and glued to their trees.

This concluded the first lesson.

Session Two

This lesson was adapted from a Newfoundland Source Book for Career Awareness Activities, K-6 (Watts et al., 1981).

The objective was to increase knowledge of work and workers and to develop an appreciation of the worth and dignity of all types of occupations. The lesson began by having students name all the occupations they knew of, starting with their immediate family and people they knew in their community. These were listed on chart paper. A discussion focused on how these occupations filled different needs and were inter-related in society. Students were led to discuss how occupations change over time as society changes.

Students then played a game called "What would happen if?" to stress the necessity for all types of workers in the

community and the interdependence of occupations. For example: "What would happen if there was a big fire and there were no fire fighters?" or "What would happen if many people were injured and there were no ambulance drivers?"

This game continued to include many work roles, such as police officers and doctors.

Session Three

The objective of this lesson was to provide students with opportunities to understand the concept of gender-role stereotyping and to recognize that such stereotyping can affect career decisions.

This lesson began by presenting a chart with stereotyped statements such as "Men should be bus drivers." The statements were read to the students and they were asked what they think. The students were then presented with the term "gender stereotype" with discussion on the limiting effects of gender-role stereotyping. Information was given on the economic situation many women face. Posters of women in non-traditional occupations were displayed. The lesson concluded with the film "The Fable of He and She."

The film provided a humorous view of life on a mythical island where male and female roles were clearly defined until unusual events force both sexes to assume different roles for survival.

Sessions Four and Five--Guest Speakers

The objective of these two sessions was to expose the students to role models in non-traditional jobs. People employed in the community spoke to the students about their career choice, pointing out the difficulties of being in a non-traditional occupation, as well as the advantages. The guest speaker in session four was a firefighter and in session five she was a marine biologist. The firefighter was dressed in uniform and brought clothes and equipment used while fighting fire. The marine biologist brought a bucket of different kinds of sea shells for the children to examine and discuss.

Session Four included a film clip about a female auto mechanic who lives in the city. The mechanic was shown on the job, as well as at home.

Session Six

This session provided a summary of the program. Then students repeated the Possible-Me Tree activity of Session One.

Procedure

A letter was sent home to parents and guardians, explaining the program. A consent form and an information sheet were enclosed with the letter (see Appendix D). The information sheet asked for the subject's date of birth and

gender, and the occupation of the subject's father, mother, and/or guardian (e.g., mother's or guardian's work). All children in the two classes were given permission to take part in the study.

Subjects were given a code number so that it was not necessary for them to use their names on the tests. The pretests and posttests were administered in the student's classrooms and took one hour to complete. All items were read aloud by the researcher. Subjects were given the opportunity to ask for repetition and clarification of statements and the researcher circulated around the classroom to ensure that all subjects understood what was expected of them.

The six sessions of the Group Intervention Treatment took place once per week for six consecutive weeks following the week of the pretest. As was mentioned above, all sessions were delivered by the researcher. The posttest was administered during the week following session six.

Design and Analysis

The data for this study yielded both quantitative and qualitative information. The quantitative information to test Hypotheses one and two is described below with respect to the multivariate analysis of variance (MANOVA). Analysis of the qualitative information for Hypothesis three follows the discussion of the MANOVA results.

Quantitative Analysis

Multivariate analysis of variance was used to assess the effects of the independent variables on seven dependent variables. The two independent variables were:

1. The Group Treatment Intervention--the Gender Conscious Career Awareness Program (see Appendix A).
2. Gender of the subjects, females versus males.

Gender is an attribute variable and is treated as a block factor in the design.

There were seven dependent variables. The first, Sex-Role Stereotypes, was determined from the Stereotype Survey. The other six were determined from the responses on the Possible Selves Occupational Survey.

1. Sex-Role Stereotypes (SRS)

   The Stereotype Survey provides a scale of attitudes toward behaviors and roles based on whether one is female or male. The higher the score, the less stereotyped the views.

2. Male Occupations for Girls (MG)

   This scale measures endorsement of occupations which are male-dominated (refer to the Definition of Terms section in Chapter One for a list of these occupations). Lower scores indicate greater endorsement of male occupations as possible for girls.

3. Male Occupations for Boys (MB)

This measures endorsement of male-dominated occupations as possible for boys. Lower scores indicate greater endorsement of male occupations as possible for boys.

4. Male Occupations for Me (MM)

This measures endorsement of male-dominated occupations as possible for oneself. Lower scores indicate greater endorsement of male occupations as possible for oneself.

5. Female Occupations for Girls (FG)

This measures endorsement of female-dominated occupations as possible for girls. Lower scores indicate greater endorsement of female occupations as possible for girls.

6. Female Occupations for Boys (FB)

This measures endorsement of female-dominated occupations as possible for boys. Lower scores indicate greater endorsement of female occupations as possible for boys.

7. Female Occupations for Me (FM)

This measures endorsement of female-dominated occupations as appropriate for oneself. Lower scores indicate greater endorsement of female occupations as possible for oneself.

Socio-economic status (SES) was considered for inclusion as a covariate to control for differences in groups.

The analysis was based on the design as depicted in Figure 1. The design allowed for treating SES and the seven dependent variables measured prior to the treatment (pretest) as covariates or the seven dependent variables could be treated as two levels of a repeated measures factor. The repeated measures (within-group) analysis was selected. The hypotheses for the questions are based on this design.

Figure 1

		Repeated Measures Factor	
Treatment	Gender	Pretest	Posttest
Experimental Group	Females	SES, 7 dependent variables	7 dependent variables
	Males	SES, 7 dependent variables	7 dependent variables
Control Group	Females	SES, 7 dependent variables	7 dependent variables
	Males	SES, 7 dependent variables	7 dependent variables

The effects of the treatment, as suggested by Hypothesis one, is tested by analyzing the significance of the interaction of the treatment variable with the repeated factor in the design. For example, the effect of treatment on stereotyped attitudes (Sex-Role Stereotypes) would be exhibited by an increase in the dependent variable for the experimental group from pretest to posttest and no increase

for the control group. Similarly, treatment should result in a greater endorsement of Male Occupations for Girls. This is reflected by a decrease in the score.

As indicated in Hypothesis two, it was also expected that there would be an effect for Gender and for the interaction of Gender and Treatment. For example, it was expected that males would be more stereotyped in their views (Sex-Role Stereotypes) and be more traditional in their endorsement of occupations than females (Male Occupations for Boys, Female Occupations for Girls). Further, it was expected that there would be an increase in Male Occupations for Me for the females in the experimental group from pretest to posttest. No change was expected for the males for three of the dependent variables:

Male Occupations for Boys,

Female Occupations for Girls, and

Female Occupations for Me.

The multivariate analysis, therefore, provides an indication of any effects of treatment, gender, the interaction of treatment and gender on all seven dependent variables. To maintain the overall level of significance at .05 level, the multivariate analysis was conducted first, and where significant, followed by univariate F-tests for the seven dependent variables (set at $p < .01$). The univariate analysis indicates the significance on each of the seven variables.

Qualitative Analysis

The qualitative information is addressed in Hypothesis three. The open-ended questions of the Possible Selves Survey were analyzed in a number of ways. First, changes in number and types of hoped for, expected, and feared selves were determined. Of interest was the balance (as indicated by the number) of hoped to feared selves and hoped to expected selves from pretesting to posttesting.

Second, possible selves were assessed according to degree of elaboration. Elaboration is defined here as amount of detail provided and vividness of detail. Of interest here were changes in elaboration from pretest to posttest and any differences between girls and boys.

CHAPTER 4

Analysis and Results

Socioeconomic Status of Subjects

The information sheet sent home to parents and guardians asked respondents to indicate the occupation of the students' father, mother, and/or guardian (e.g., Mother's or Guardian's work). Socioeconomic Status (SES) was determined using the Blishen and McRoberts (1976) scale. The occupation listed which had the highest SES (whether mother's or father's) was used as the subjects' SES, even though the Blishen and McRoberts scale is based on male occupations.

It should be noted that there was difficulty classifying several items listed as occupations, since they are not included on the Blishen and McRoberts Scale. These were: student (n = 3), homemaker (n = 4), and unemployed (n = 10). A judgement was made to place these items in the lowest class of the scale, based on other items which were deemed similar. Caution should be taken, however, in interpreting the SES results because of these limitations.

There was no significant difference between the experimental group (M = 35.9) and control group (M = 33.1) on SES (F = 1.572, p = .220). Therefore, SES was not included in the analysis of the results. The Blishen and McRoberts scale uses six classes based upon the use of the

tens digits, with the lowest class listed as "below 30." The other categories are: 30.00-39.99; 40.00-49.99; 50.00-59.99; 60.00-69.99; 70+. The mean score for the two groups was 34.45. Half of the subjects in the study (22) had an SES below 30. Thirty-eight of the 44 subjects were in the three lowest classes (below 49.99), indicating an overall lower to lower middle SES.

Multivariate Analysis of Variance (MANOVA)

Multivariate analyses were used to test the effects of the Treatment and of Gender on the seven dependent variables. The design (as shown in Figure 1, Chapter 3), included a repeated measures factor, where the subjects were tested prior to the experimental condition (pretest) and then after (posttest). The effect of the treatment would be exhibited by the interaction effect of the Group Treatment and Pretest-Posttest. Other interactions involving gender, as well as main effects, could be tested.

There are two error terms for the analysis. The first is based on subjects within groups, and was used to test hypotheses involving the between groups factors, Group Treatment and Gender (averaged from Pretest to Posttest). The second is based on the residual variance (including subject by group interaction), and was used to test effects containing the repeated measures factor, Pretest to Posttest.

The group sizes ranged from 10 to 12, resulting in singular variance-covariances matrices for the four groups, which made it impossible to test for homogeneity of variance-covariance across groups. The variances were averaged from Pretest to Posttest to obtain variances for the first error term, and these did not differ greatly across the four groups (see the column Pretest-Posttest Average in Table 1). Thus, the first error term was assumed to be acceptable for the tests based on it.

The circularity assumption was tested for the second error term, that involving the repeated measures factor (Pretest to Posttest). The Mauchley test for sphericity was used (Kirk, 1982) and found to be significant, $W = .065$ and $\chi^2 (27) = 102.32$ ($p < .001$), implying that the assumption was questionable. Kirk (1982) suggested that a significant Mauchley test be followed by more conservative tests of the hypotheses. This is accomplished by using a critical F ratio based on adjusted degrees of freedom (Geisser-Greenhouse procedure, Kirk, 1982), which were calculated to be 4.23 and 21.29: the critical values, then, are F (0.05, 4, 22) = 2.82 and F (0.01, 4, 22) = 4.31. The multivariate tests involving the second error term that obtained significance based on the unadjusted F ratio ($df = 7, 34$) were then checked for significance based on the more conservative F's with adjusted degrees of freedom.

The results of the MANOVA are summarized in Table 2.

Table 1

Means and Standard Deviations for the Seven Dependent Variables

Treatment Group	Gender		Pretest		Posttest		Pretest-Posttest Average	
		n	*M*	*SD*	*M*	*SD*	*M*	*SD*
Sex-Role Stereotypes (SRS)								
Experimental	Male	10	40.10	6.62	43.20	5.29	41.65	5.52
	Female	12	42.50	4.30	45.42	4.14	43.96	3.95
Control	Male	11	37.53	5.82	37.36	6.25	37.45	5.35
	Female	11	43.84	3.52	43.91	4.66	43.87	3.97
Male Occupations for Girls (MG)								
Experimental	Male	10	25.10	5.74	22.13	3.98	23.61	4.31
	Female	12	26.58	7.05	24.78	6.14	25.68	6.21
Control	Male	11	32.51	4.40	29.82	6.09	31.16	4.47
	Female	11	24.98	6.01	24.97	6.43	24.97	5.71
Male Occupations for Boys (MB)								
Experimental	Male	10	18.90	1.97	19.67	4.22	19.29	2.80
	Female	12	20.42	4.58	20.68	4.50	20.55	4.29
Control	Male	11	21.20	3.57	19.71	3.89	20.45	3.49
	Female	11	18.32	2.55	18.91	3.02	18.62	2.72
Male Occupations for Me (MM)								
Experimental	Male	10	38.40	3.86	40.36	4.66	39.38	3.72
	Female	12	43.00	3.33	42.19	5.10	42.59	3.77
Control	Male	11	32.34	8.71	33.89	9.29	33.11	8.67
	Female	11	39.18	7.24	41.64	6.06	40.41	5.90
Female Occupations for Girls (FG)								
Experimental	Male	10	10.13	1.13	9.75	1.36	9.94	0.86
	Female	12	10.17	2.33	10.17	2.08	10.17	1.68
Control	Male	11	9.36	0.67	9.55	1.04	9.45	0.72
	Female	11	10.28	2.69	9.46	0.93	9.87	1.80
Female Occupations for Boys (FB)								
Experimental	Male	10	14.80	3.36	13.34	4.03	14.07	3.34
	Female	12	16.08	4.96	14.63	5.86	15.35	5.17
Control	Male	11	18.55	3.11	16.46	4.10	17.50	3.38
	Female	11	13.88	3.12	13.82	3.19	13.85	2.90
Female Occupations for Me (FM)								
Experimental	Male	10	23.49	2.26	24.50	2.99	23.99	2.53
	Female	12	17.95	3.01	17.12	4.40	17.53	3.35
Control	Male	11	22.46	3.17	22.85	3.88	22.65	3.33
	Female	11	16.77	5.42	18.27	4.50	17.52	4.83

Table 2

Multivariate ANOVA Results

Source of Variance	Wilks λ	df	Error df	F	p
Treatment Group (Experimental-Control)[a]	.58930	7	34	3.385	.008**
Gender (Females-Males)[a]	.21598	7	34	17.631	.000**
Treatment Group x Gender[a]	.68913	7	34	2.191	.060
Pre Post (Pretest-Posttest)[b]	.56082	7	34	3.804	.004**
Treatment Group x Pre Post[b]	.77367	7	34	1.421	.229
Gender x Pre Post[b]	.88217	7	34	0.649	.713
Treatment x Gender x Pre Post[b]	.74240	7	34	1.685	.146

* $p < .05$ ** $p < .01$

[a]Tested using the error variance-covariance within groups

[b]Tested using the error variance-covariance including within groups and pretest-posttest interaction

Hypothesis 1: Treatment Effects

The first research hypothesis predicted changes on the dependent variables as a result of the treatment, the Gender Conscious Career Awareness Program. Specifically it was expected that the treated group would show less stereotyped attitudes (as measured by the Stereotype Survey) and show more non-traditional possible selves for girls and boys (male occupations for girls, and female occupations for boys) and for themselves.

It was further expected that girls in the Experimental condition would have a significant increase in male occupations for themselves. Since the main focus of the program was on non-traditional jobs for females, we might not expect a significant increase for the boys. We might also expect a decrease in female dominated jobs for girls, and again we might not expect this change for the boys.

There was no overall effect of treatment: the Treatment Group x Pretest-Posttest interaction was not significant (λ = .774, F = 1.421, p = .229) (see also Table 2).

Univariate F-tests do not show significance on any of the dependent variables, at the set .01 level. One dependent variable, Sex-Role Stereotypes, was significant at the .05 level (see Table 3). Table 4 shows that the mean for the Experimental group increased from 41.40 to 44.40, while the mean for the Control group remained essentially

Table 3

Univariate ANOVA Results for Treatment Group x Pretest-Posttest Interaction Effect on Seven Dependent Variables

Variables	Univariate F-tests			
	MS	*df*[a]	*F*	*p*
Sex-Role Stereotypes (SRS)	51.08	1	6.22	.017*
Male Occupations for Girls (MG)	5.99	1	0.47	.496
Male Occupations for Boys (MB)	5.10	1	1.43	.238
Male Occupations for Me (MM)	11.30	1	0.92	.344
Female Occupations for Girls (FG)	0.10	1	0.05	.823
Female Occupations for Boys (FB)	0.82	1	0.18	.670
Female Occupations for Me (FM)	4.04	1	1.05	.311

* $p < .05$ ** $p < .01$

[a] df for error term = 40

Table 4

Means and Standard Deviations for Treatment Group from Pretest to Posttest on One Dependent Variable

Treatment Group		Pretest		Posttest	
	n	M	SD	M	SD
		Sex-Role Stereotypes			
Experimental	22	41.41	5.47	44.41	4.72
Control	22	40.68	5.70	40.64	6.34

Note: Higher scores indicate less stereotyped attitudes.

the same (pretest $\underline{M}$ = 40.68; posttest $\underline{M}$ = 40.63). This suggests a trend in the right direction, however, one which must be viewed cautiously, given the lack of significance.

Table 2 provides the MANOVA results for the effect of Treatment Group, Gender, and Pretest-Posttest interaction (λ = .742, $\underline{F}$ = 1.685, $\underline{p}$ = .146). Also, contrary to predictions significance was not achieved. Examination of univariate F-tests (Table 5) also shows lack of significance. One variable, Female Occupations for Me, approached significance at the .05 level only.

Gender Effects

There was a highly significant Gender Effect irrespective of Treatment Group and Pretest-Posttest (λ = .216, $\underline{F}$ = 17.631, $\underline{p}$ = .000). Univariate analysis (Table 6) shows significance on three of the dependent variables, Sex-Role Stereotypes, Male Occupations for Me, and Female Occupations for Me. The means (see Table 7) indicated that the boys ($\underline{M}$ = 39.45) are more stereotyped than the girls ($\underline{M}$ = 43.92). Male Occupations for Me (MM) and Female Occupations for Me (FM) were in the predicted direction. Significantly more males saw male occupations appropriate for themselves than did females and significantly more females saw female occupations appropriate for themselves than did males (see Table 7).

Table 5

Univariate ANOVA Results for Treatment Group x Gender x Pretest-Posttest Interaction Effect on Seven Dependent Variables

Variables	Univariate F-tests			
	MS	*df*[a]	*F*	*p*
Sex Role Stereotypes (SRS)	0.24	1	0.03	.865
Male Occupations for Girls (MG)	3.13	1	0.25	.622
Male Occupations for Boys (MB)	9.17	1	2.53	.120
Male Occupations for Me (MM)	18.46	1	1.50	.228
Female Occupations for Girls (FG)	2.63	1	1.31	.259
Female Occupations for Boys (FB)	5.64	1	1.27	.267
Female Occupations for Me (FM)	11.90	1	3.10	.086

* $p < .01$

[a] df for error term = 40

Table 6

Univariate ANOVA Results for Gender Effect on Seven Dependent Variables

Variables	Univariate F-tests			
	MS	*df*[a]	*F*	*p*
Sex Role Stereotypes (SRS)	418.04	1	9.40	.004*
Male Occupations for Girls (MG)	93.19	1	1.67	.204
Male Occupations for Boys (MB)	1.79	1	0.08	.784
Male Occupations for Me (MM)	604.81	1	8.77	.005*
Female Occupations for Girls (FG)	2.27	1	0.60	.443
Female Occupations for Boys (FB)	30.71	1	1.04	.315
Female Occupations for Me (FM)	736.14	1	28.54	.000*

* $p < .01$

[a] df for error term = 40

Table 7

Means and Standard Deviations for Gender Effect on Three Dependent Variables

Gender	*n*	*M*	*SD*
Sex Role Stereotypes (SRS)			
Male	21	39.45	5.72
Female	23	43.92	3.87
Male Occupations for Me (MM)			
Male	21	36.10	7.35
Female	23	41.55	4.91
Female Occupations for Me (FM)			
Male	21	23.29	2.91
Female	23	17.53	4.02

Note: Higher scores on SRS indicate less stereotyped attitudes. Lower scores on MM and FM indicate less stereotyped attitudes.

Treatment Group Effects

The MANOVA (Table 2) shows significant Experimental-Control group differences (λ = .589, F = 3.385, p = .008). None of the seven dependent variables were significant at the .01 level. Two dependent variables were significant at the .05 level: Male Occupations for Girls and Male Occupations for Me (see Table 8). The means (Table 9) suggest possible trends. The Experimental group appeared to see more male dominated occupations as possibilities for girls, both before and after the treatment. However, the Control group appeared to view more male-dominated occupations as possible for themselves than did the Experimental group, both before and after the treatment. Earlier no differences due to treatment were obtained. The effect here is based on scores averaged over pretest to posttest, and therefore, represent possible initial group differences. They do not give evidence of difference due the treatment intervention.

Pre-Post Effect

The multivariate analysis shows a significant pre-post effect (F = 3.80, p = .004) (Table 2). Univariate tests (see Table 10) show significance on one of the variables, Female Occupations for Boys (FB) at the set level of .01. Two of the variables, Sex-Role Stereotypes (SRS) and Male

Table 8

Univariate ANOVA Results for Treatment Group Effect on Seven Dependent Variables

Variables	Univariate F-tests			
	MS	*df*[a]	*F*	*p*
Sex-Role Stereotypes (SRS)	100.81	1	2.27	.140
Male Occupations for Girls (MG)	256.59	1	4.60	.038*
Male Occupations for Boys (MB)	3.23	1	0.14	.713
Male Occupations for Me (MM)	391.27	1	5.67	.022*
Female Occupations for Girls (FG)	3.33	1	0.88	.353
Female Occupations for Boys (FB)	20.27	1	0.68	.413
Female Occupations for Me (FM)	9.97	1	0.39	.538

* $p < .05$ ** $p < .01$

[a] df for error term = 40

Table 9

Means and Standard Deviations for Treatment Group Effect on Two Dependent Variables

Treatment Group	*n*	*M*	*SD*
	Male Occupations for Girls (MG)		
Experimental	22	24.74	5.41
Control	22	28.07	5.93
	Male Occupations for Me (MM)		
Experimental	22	41.13	4.00
Control	22	36.76	8.14

Note: Lower scores on MG and MM indicate less stereotyped attitiudes.

Occupations for Girls (MG), are significant at the .05 level (see Table 10). The means (Table 11) show that in the posttest more students saw female occupations as possible for boys ($\underline{M}$ = 15.86; M = 14.59). Two other possible trends are suggested: less stereotyped attitudes from pretest to posttest and more male occupations as possible for girls in the posttest. This gives evidence of some change over the treatment intervention period, but not due to the treatment. However, it is suggestive that changes did occur and can occur over this time period.

In summary, none of the interactions reached significance. However, the interaction of Treatment Group x Gender approached significance (λ = .689, $\underline{F}$ = 2.191, $\underline{p}$ = .060). Univariate tests show that none of the seven dependent variables were significant at the .01 level. Male Occupations for Girls and Female Occupations for Boys were significant at the .05 level (see Table 12), suggesting possible trends. The means (Table 13) show that boys in the Experimental group may have viewed more male-dominated occupations as possible for girls than did girls in the Experimental group, and boys and girls in the Control group. Girls in the Control group may have seen more female-dominated occupations as possible for boys than did boys in the Control group, and boys and girls in the Experimental group. However, given the overall lack of significance on the MANOVA and the increased possibility of significance on

Table 10

Univariate ANOVA Results for Pretest-Posttest Effect on Seven Dependent Variables

Variables	Univariate F-tests			
	MS	*df*[a]	*F*	*p*
Sex-Role Stereotypes (SRS)	8.22	1	5.85	.020*
Male Occupations for Girls (MG)	12.66	1	6.02	.019*
Male Occupations for Boys (MB)	3.63	1	0.01	.937
Male Occupations for Me (MM)	12.31	1	2.96	.093
Female Occupations for Girls (FG)	2.01	1	0.71	.403
Female Occupations for Boys (FB)	4.44	1	7.92	.008**
Female Occupations for Me (FM)	3.84	1	1.54	.222

* $p < .05$ ** $p < .01$

[a] df for error term = 40

Table 11

Means and Standard Deviations from Pretest to Posttest on Three Dependent Variables

	n	*M*	*SD*
Female Occupations for Boys (FB)			
Pretest	44	15.86	4.05
Posttest	44	14.59	4.46
Sex-Role Stereotypes (SRS)			
Pretest	44	41.05	5.53
Posttest	44	42.52	5.84
Male Occupations for Girls (MG)			
Pretest	44	27.33	6.49
Posttest	44	25.49	6.23

Note: Lower scores on MG and FB indicate less stereotyped attitudes. Higher scores on SRS indicate less stereotyped attitudes.

Table 12

Univariate ANOVA Results for Treatment Group x Gender Interaction on Seven Dependent Variables

Variables	Univariate F-tests			
	MS	*df*[a]	*F*	*p*
Sex-Role Stereotypes (SRS)	92.96	1	2.09	.156
Male Occupations for Girls (MG)	373.25	1	6.68	.013*
Male Occupations for Boys (MB)	52.57	1	2.24	.142
Male Occupations for Me (MM)	91.04	1	1.32	.257
Female Occupations for Girls (FG)	0.19	1	0.05	.824
Female Occupations for Boys (FB)	133.60	1	4.51	.040*
Female Occupations for Me (FM)	9.72		0.38	.543

* $p < .05$ ** $p < .01$

[a] df for error term = 40

Table 13

Means and Standard Deviations for Treatment Group by Gender Effect on Two Dependent Variables

Treatment Group	Gender	*n*	*M*	*S*
		Male Occupations for Girls (MG)		
Experimental	Male	10	23.61	4.31
	Female	12	25.68	6.21
Control	Male	11	31.16	4.47
	Female	11	24.97	5.71
		Female Occupations for Boys (FB)		
Experimental	Male	10	14.07	3.34
	Female	11	15.35	5.17
Control	Male	11	17.50	3.38
	Female	11	13.85	2.90

Note: Lower scores indicate less stereotyped attitudes.

any one test when conducting a series of univariate tests, coupled with significance at the .05 level only, these results are, at best, extremely tentative.

Occupations on the Open-Ended Questionnaire of the Possible Selves Occupational Survey: Part 1

Part one of the survey requested that the children list spontaneously the job or jobs they hoped to have in the future, jobs they were worried about having, and jobs they really expected to have. Occupations were coded for analysis as either male-dominated (M) or female-dominated (F) or neutral (N). This was done according to the 1986 Census of Canada Statistics for Newfoundland. Occupations were grouped according to the Standard Occupational Classification, 1980 (SOC). Because of this classification some occupations may not seem to fit with the public perception as it relates to gender typing. For example, the job of janitor is usually perceived as a male job, but according to the SOC it is grouped with Cleaners and Charworkers and is, consequently, a female-dominated job. Similarly, the job of coach is perceived as a male job but because it is grouped with Trainers and Instructors, Sports and Recreation, it is in the neutral category. Where children listed "teacher" this item was classified under Elementary Teacher which is female-dominated, whereas secondary teacher is neutral. This latter category was used

when children specified "High school" teacher or "Math" teacher. Some responses were coded as "not classifiable" (N.C.) such as "unemployed" and "welfare." See Appendix E for a complete listing.

Because of the large number of different responses, to aid in analysis some of the responses were grouped together. For example, when children listed items such as NHL player, NFB player, MLB player, these were listed as Athlete. Many children used terms such as storekeeper and shop owner. These were included under Clerk/Cashier. The terms referee, coach, martial arts instructor were listed as Coach/Sports Instructor.

It is not clear whether all children made the distinction between hoped for and expected jobs. For example, some of them asked if it would be okay to list the same jobs in both categories if they expected to have the jobs they hoped for. A few children showed some confusion by listing a much more accessible job in the hope category than in the expect category, as with the girl who hopes to be a pom pom girl but expects she'll be an actor.

Comparison of Occupation Choices of Girls in the Experimental and Control Groups on the Pretests and Posttests

Number of Jobs

On the pretest the 12 girls in the Experimental group listed 34 hopes, 21 worries, and 20 expected jobs for a

total of 75 jobs. The number of occupations listed by the 11 girls in the Control group was about the same on the pretest: hopes--34, worries--19, expects--18, for a total of 71 jobs. Most girls gave 1-3 responses for each category and usually listed more jobs in the hope category than in the worry or expect category.

Some differences were apparent between the two groups on the posttest. There was little change in the total number of occupations for girls in the Experimental group. They listed 36 hopes, 25 worries, and 18 expects, for a total of 79 jobs. This was an increase of 4 from the pretest.

The Control group girls increased the overall number of jobs by 14. They listed 37 hopes, 26 worries, and 22 expects, for a total of 85 jobs. The largest increase was in the worry category where control group girls went from 19 jobs at pretest to 26 jobs at posttest.

Comparison of Traditionality--Non-Traditionality of Occupations of Girls

There were some differences between the two groups of girls on the pretest in terms of traditional and non-traditional jobs selected. Girls in the Experimental group selected 13 male-dominated occupations (M) (38.24%), 15 female-dominated occupations (F) (44.12%), and 6 neutral jobs (N) (17.65%) in the hope category. In the expect

category they selected 7 M (35%), 9 F (45%), and 4 N (20%). Control group girls made more non-traditional choices in the hope and expect categories on the pretest. They selected 22 M (64.71%), 11 F (32.35%), and 1 N (2.94%) in the hope category. In the expect category they selected 10 M (55.56%), 7 F (38.89%), and 1 N (5.56%).

Both groups were similar in the worry category. Experimental girls selected 10 M (42.85%), 5 F (23.81%), and 6 N (33.33%), while the Control girls selected 8 M (42.11%), 4 F (21.05%), 6 N (31.58%), and 1 not classifiable (NC) (5.26%).

On the posttest the Experimental girls selected 16 M jobs (44.44%) in the hope category. This is an increase of 3 over the pretest. They selected 16 F (44.44%), an increase of 1, and 4 N (11.11%), a decrease of 2 jobs. In the expect category Experimental girls listed 6 M (33.33%), a decrease of 1; 10 F (55.56%), an increase of 1; and 2 N (11.11%), a decrease of 2 jobs.

There was little change by girls in the Control group for the hope category of the posttest. They listed 23 M (62.16%), an increase of 1; 11 F (29.73%), the same as the pretest; and 3 N (8.11%), an increase of 2 jobs. In the expect category the Control girls listed 12 M (54.55%), an increase of 2; 6 F (26.92%), a decrease of 1; and 4 N (18.18%), an increase of 3 jobs.

There were some changes in the composition of the worry category for both groups on the posttest. Experimental girls listed 7 M (28%), a decrease of 3; 11 F (44%), an increase of 6; and 7 N (28%), an increase of one job. Control girls listed 12 M worries (46.15%), an increase of four; 7 F (26.92%), an increase of three; and 7 N (26.92%), an increase of one job.

The biggest change for both groups of girls was in the worry category. While girls in the experimental group had very little change in the overall number of jobs listed, they seemed to worry about far more female-dominated (traditional) jobs at posttest, but fewer male-dominated jobs, without increasing the number of hoped for and expected jobs. Control girls increased the number of jobs in all three categories but also increased the number of male-dominated (traditional) jobs that they worry about (an increase of four), as well as increasing the number of female-dominated (non-traditional) jobs (an increase of three).

Comparison of Occupation Choices of Boys in the Experimental and Control Groups on the Pretests and Posttests

Number of Jobs

There was very little difference between the two groups of boys on the pretest. Both groups had approximately the same number of jobs listed in the hope, worry, and expect

categories. The 10 boys in the experimental group listed 29 hopes, 20 worries, and 14 expects, for a total of 63 jobs. The 11 control group boys listed 30 hopes, 22 worries, and 13 expects, for a total of 65 jobs. On the posttest the experimental boys listed 40 hopes, 16 worries, and 17 expects, for a total of 73 jobs. Control boys listed 20 hopes, 16 worries, and 13 expects, for a total of 49 jobs. The biggest change between the two groups on the posttest was in the hope category where the experimental boys increased the number of jobs by 11, while the Control boys decreased by 10 the number of jobs in this category. Both groups decreased the number of worries: the Experimental group by four, and the Control group by six. The Experimental group increased by three the number of expected jobs, while the Control boys maintained the same number as on the pretest.

Comparison of Traditionality-Non-Traditionality of Occupations of Boys

There was very little difference between the two groups on the pretest in terms of traditional and non-traditional jobs selected. Boys in the Experimental group listed 27 M (93.10%), zero F, and 2 N (6.90%) jobs in the hope category; 10 M (50%); 4 F (20%), and 6 N (30%) in the worry category; and 11 M (78.57%), 1 F (7.14%), and 2 N (14.29%) in the expect category.

Control boys selected 27 M (90%), 2 F (6.67%), zero N, and 1 N.C. (3.33%) in the hope category; for worries they selected 9 M (40.91%), 5 F (22.73%), 3 N (13.64%), and 5 N.C. (22.73%); and 11 M (84.62%), 1 F (7.69%), zero N, and 1 N.C. (7.69%) in the expect category.

On the posttest the biggest change was with boys in the Experimental group who showed a slight decrease in the number of M jobs and increase in N jobs in the hope category. Experimental boys listed 33 M (82.5%), from 93.10%), 1 F (2.5%), and 6 N (15%, from 6.9%) in the hope category; 7 M (43.75%), 3 F (18.75%), and 6 N (37.5%) in the worry category; and 14 M (82.35%), 1 F (5.88%), and 2 N (11.76%) in the expect category.

Control boys showed slight changes in the worry and expect categories on the posttest. In the hope category they listed 18 M (90%), 1 F (5%), and 1 N (5%); 7 M (43.75%), 7 F (43.75%, from 22.73%), zero N, and 2 N.C. (12.5%). In the expect category the Control group listed 13 jobs, all of which were M. On the pretest 84.62% of jobs in the expect category were M (11 of 13 jobs).

Comparison of Girls' and Boys' Choices

There was very little difference on the pretest in the total number of occupations listed by girls and boys as hopes, worries and expectations (see Tables 14 to 16 for a complete listing of occupations and frequencies). On the

Table 14

Pretest-Posttest Hopes of Girls and Boys: Number of Children Choosing Each Occupation

	Pretest				Posttest				
	Experimental		Control		Experimental		Control		
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Total
Firefighter	1	2	--	1	--	3	--	--	7
Pilot	--	--	--	--	--	1	--	--	1
Movie Star/Actor	--	2	--	--	--	2	1	2	7
Entertainer	--	--	2	--	2	--	3	--	7
Athlete	2	10	--	5	2	5	--	2	26
Coach/Sports Instructor	1	1	--	--	3	3	--	--	8
Dentist/Orthodontist	1	--	--	2	1	--	--	1	5
Store Clerk/Cashier	1	--	1	1	--	--	--	2	5
Waiter/Waitress	--	--	--	--	--	--	--	1	1
Elementary Teacher	5	--	5	1	6	--	5	1	22
Secondary Teacher	1	1	--	--	--	--	--	--	2
Photographer	--	2	--	--	--	1	--	--	3
Media Commentator/Reporter	--	2	--	--	--	--	--	--	2
President/Manager/Boss	1	--	--	--	4	--	--	--	4
Nurse	2	--	3	--	4	--	3	--	12
Secretary/Typist	3	--	--	--	2	--	1	--	6
Hair Dresser/Stylist	2	--	1	--	2	--	--	--	5

	Pretest				Posttest				
	Experimental		Control		Experimental		Control		
	Girls	Boys	Girls	Boys	Girls	Boys	Giris	Boys	Total
Scientist/Biologist	2	1	--	--	1	2	4	--	10
Lawyer	1	--	2	4	1	1	--	3	12
Diver	1	--	--	--	1	--	--	--	2
Bank Employee	1	--	--	--	--	--	--	--	1
Police Officer	2	3	3	2	3	5	3	2	23
Chef/Cook	1	--	--	--	2	--	--	--	3
Physician/Surgeon	1	1	6	4	--	2	5	2	21
Armed Forces	--	--	--	--	--	2	--	--	2
Carpenter	--	--	--	4	--	1	--	2	7
Homemaker/Housewife	--	--	--	--	1	--	--	--	1
Mechanic	--	1	--	--	--	1	--	--	2
Repair/Electrician	--	--	--	1	--	1	--	--	2
Archaeologist	--	1	1	--	--	1	1	--	4
Animal Attendant	--	--	1	--	--	--	--	--	1
Personal Care Attendant	1	·	--	--	--	--	--	--	1
Social Worker	1	--	--	--	--	1	--	--	2
Principal	1	--	--	--	--	--	--	--	1
Landlord	1	--	--	--	--	--	--	--	1
Dental Assistant	--	--	1	--	--	--	--	--	1

	Pretest				Posttest				
	Experimental		Control		Experimental		Control		
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Total
Mathematician	--	--	1	--	--	--	1	1	3
Veterinarian	--	--	3	--	--	--	4	--	7
City Council Outside Worker	--	--	--	1	--	--	--	1	2
Sports/Sex Therapist/ Physiotherapist	--	--	1	--	--	1	--	--	2
Millionaire	--	--	--	1	--	--	--	--	1
Artist/Writer	--	--	1	--	1	1	1	--	4
Engineer	--	--	--	1	--	--	--	1	2
Secret Service	--	--	--	--	--	3	--	--	3
Plumber	--	--	--	--	--	--	--	1	1
Pom Pom Girl	--	--	--	--	--	--	1	1	2

Table 15

Pretest-Posttest Worries of Girls and Boys: Number of Children Choosing Each Occupation

	Pretest				Posttest				
	Experimental		Control		Experimental		Control		
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Total
Firefighter	1	1	--	--	1	--	1	1	5
Pilot	1	1	--	--	1	2	--	--	5
Movie Star/Actor	1	--	--	--	--	--	--	--	1
Entertainer	--	--	1	--	--	1	--	1	3
Athlete	--	--	--	1	1	--	--	--	2
Dentist/Orthodontist	--	--	--	--	--	--	--	1	1
Store Clerk/Cashier	5	4	6	1	7	4	6	--	33
Waiter/Waitress	2	3	2	2	3	1	--	--	13
Elementary Teacher	1	--	--	2	1	1	--	1	6
Politician	--	1	--	--	--	--	--	--	1
Secondary Teacher	--	--	--	--	1	--	--	--	1
President/Manager/Boss	--	1	--	--	--	--	--	--	1
Secretary/Typist	--	--	1	1	--	--	1	1	3
Maintenance/Garbage Collector	4	2	1	1	1	3	1	1	14
Hair Dresser/Stylist	--	--	--	1	--	--	3	--	4
Plant/Factory Worker	1	1	--	--	--	--	--	--	2
Lawyer	1	--	--	--	--	1	1	--	3

	Pretest				Posttest				
	Experimental		Control		Experimental		Control		
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Total
Bank Employee	1	--	--	--	2	1	--	--	4
Police	--	--	1	1	--	--	--	--	2
Chef/Cook	--	2	--	1	--	--	--	--	3
Letter Carrier/Delivery	--	--	2	1	--	--	1	--	4
Physician/Surgeon	--	--	--	1	--	--	--	--	1
Armed Forces	--	1	--	--	--	--	--	--	1
Carpenter	--	1	--	--	--	--	--	--	1
Bus/Taxi Driver	1	--	1	1	1	--	--	1	5
Homemaker/Housewife	1	--	--	--	1	--	--	--	2
Gas Pump Attendant	--	1	--	2	--	--	--	1	4
Mathematician	--	--	--	--	--	--	1	--	1
Social Worker	1	--	--	--	--	--	--	--	1
Judge	--	--	1	--	--	--	1	--	2
Fisherperson	--	--	1	--	--	--	1	--	2
Bum/Welfare/UI	--	--	1	4	--	--	--	1	6
Low Paying Job	--	--	1	--	--	--	--	--	1
City Council Outside Worker	--	--	--	--	--	1	--	1	2
Accountant	--	--	--	--	1	--	--	--	1
Artist/Writer	--	--	--	--	--	--	1	--	1

	Pretest				Posttest				
	Experimental		Control		Experimental		Control		
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Total
Farmer	--	--	--	--	--	1	--	--	1
Engineer	--	--	--	--	--	--	--	1	1
Janitor/Cleaner/Maid	--	--	--	--	1	--	1	2	4
Librarian	--	--	--	--	1	--	--	--	1
Security	--	--	--	--	--	--	1	--	1
Girl's Job	--	--	--	--	--	--	--	1	1
Kind That Do a Lot of Work	--	--	--	--	--	--	--	1	1

Table 16

Pretest-Posttest Expectations of Girls and Boys: Number of Children Choosing Each Occupation

	Pretest				Posttest				
	Experimental		Control		Experimental		Control		
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Total
Firefighter	--	--	--	--	--	1	--	--	1
Movie Star/Actor	1	1	--	--	--	1	1	--	4
Entertainer	1	--	--	--	--	--	--	--	1
Athlete	--	2	--	2	1	2	--	3	10
Coach/Sports Instructor	--	1	--	--	1	1	--	--	3
Dentist/Orthodontist	1	--	--	2	--	--	--	1	4
Store Clerk/Cashier	2	--	1	--	--	1	2	--	6
Waiter/Waitress	--	--	--	--	--	--	1	--	1
Elementary Teacher	3	1	1	1	3	1	1	--	11
Photographer	--	1	--	--	--	1	--	--	2
Politician	--	1	--	--	--	--	--	--	1
President/Manager/Boss	--	2	--	1	2	--	--	--	5
Nurse	2	--	3	--	2	--	3	--	10
Secretary/Typist	--	--	--	--	2	--	1	--	3
Hair Dresser/Stylist	1	--	--	--	1	--	--	--	2
Scientist/Biologist	1	--	--	--	1	1	3	1	7
Lawyer	1	1	1	2	--	1	1	3	10

	Pretest				Posttest				
	Experimental		Control		Experimental		Control		
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Total
Bank Employee	2	--	--	--	--	--	--	--	2
Police Officer	1	2	2	2	2	2	2	2	15
Chef/Cook	1	--	--	--	2	--	1	--	4
Physician/Surgeon	1	--	1	--	--	--	1	--	3
Armed Forces	--	1	--	--	--	--	--	--	1
Carpenter	--	--	--	2	--	1	--	1	4
Electrician	--	--	--	--	--	1	--	--	1
Homemaker/Housewife	1	--	--	--	--	--	--	--	1
Social Worker	--	--	--	--	1	--	--	--	1
Archaeologist	--	--	1	--	--	--	--	--	1
Veterinarian	--	--	3	--	--	--	4	--	7
Sports/Sex Therapist/ Physiotherapist	--	--	1	--	--	-	--	--	1
City Council Outside Worker	--	--	--	--	--	1	--	--	1
Artist/Writer	--	--	1	--	--	1	1	1	4
Engineer	--	--	--	--	--	--	--	1	1
Janitor/Cleaner/Maid	--	--	--	--	--	1	--	--	1

posttest there was an increase in the number of hopes (n = 10) listed by boys in the Experimental group with a corresponding decrease of hopes (n = 6) for boys in the Control group. For the girls the biggest change on the posttest was an increase in the number of expectations (n = 7) listed by girls in the control group.

As has already been noted, responses of boys and girls were mainly stereotyped, with girls making more non-traditional choices than boys. Non-traditional occupations most often chosen by girls on the pretests and posttests were police officer, physician/surgeon, and lawyer. On the posttest two other male-dominated occupations that were of interest to girls were veterinarian and scientist/biologist. The increase in these jobs was accounted for, however, by the girls in the Control group.

The majority of jobs were mentioned once or twice in each category. Tables 17 and 18 show jobs which were listed four or more times on either the pretests or the posttests. As shown in Table 17, elementary teacher was the most popular choice for girls on the pretests and posttests as a hope and an expectation. For boys the most popular hope was athlete. These two occupations were less popular as expectations (pre- and post-) but still rated fairly high. Other jobs which were popular choices for girls were: entertainer, scientist/biologist, and veterinarian. For

Table 17

Most Frequent Hopes and Expectations of Girls and Boys in the Pretests and Posttests

	Number of Students Endorsing:			
	Hopes		Expectations	
	Pretest	Posttest	Pretest	Posttest
Girls				
Elementary Teacher	10	11	4	4
Nurse	5	7	5	5
Physician Surgeon	7	5		
Police Officer	5	6	3	4
Boys				
Athlete	15	7	4	5
Police Officer	5	7	4	4
Physician/Surgeon	5	4		
Lawyer	4	4		

Table 18

Most Frequent Worries of Girls and Boys in the Pretests and Posttests

	Number of Students Endorsing: Worries	
	Pretest	Posttest
Girls		
Clerk/Cashier	11	13
Maintenance/Garbage Collector	5	2
Boys		
Clerk/Cashier	5	4
Maintenance/Garbage Collector	3	4

boys, other popular choices were movie star/actor and carpenter. The most frequently mentioned worry for boys and for girls was clerk/cashier (see Table 18). It should be noted that this is a neutral category job. However, what is perhaps more significant about the most frequently cited worries is that they are jobs falling in a low SES category.

Elaborations of the Possible Selves

Students were asked to elaborate on their first choice of hoped, worried, and expected jobs. They were asked to do this by answering these questions: Where are you? What is around you? What are you doing? Anything else? There were very little differences between the experimental and the control group on pretests and posttests except for those noted above with regard to the sex-typing of jobs. For both groups the hopes and expectations were far more prestigious jobs than the fears. For example, some of the hoped-for and expected jobs included doctor, lawyer, police officer, veterinarian, teacher, and marine biologist. The jobs most frequently feared were store clerk, garbage collector, and food counter worker (Mcdonald's, Pizza Pros). A few children feared jobs that may be dangerous such as fire fighter (they used fireman) and pilot, and one boy feared being a lawyer on both the pretests and posttests. There was considerable overlap, especially in the hoped and expected categories but some children's worries were other

children's hopes or expectations. For example, some children worried about being a teacher or a dentist, while other children hoped or expected to have those occupations.

Girls in the Experimental group most frequently listed teacher, police officer, and nurse as a hoped-for or expected job, while girls in the Control group most frequently listed veterinarian, doctor, teacher, and police officer, reflecting their more non-traditional views as previously noted. The favourite choices for boys in the Experimental group were hockey player and police officer. Boys in the Control group favoured doctor, hockey player, and police officer.

There was very little change in the degree of elaboration of responses, regardless of group or gender. With very few exceptions children who gave elaborate, vivid responses on the pretest tended to do the same on the posttest, and those whose answers were sparse on the pretest were generally sparse on the posttest. A few children seemed to be bored with the activity the second time around and their responses were notably briefer. A few children elaborated more on the posttest, but for the majority of children there was no change.

The responses showed that children have accurate knowledge about the jobs they selected, either from television or from family members. For example, one girl mentioned counting her "float" in her job in a store, and

another girl in her job as a nurse was "helping a mother breathe good enough to have her baby."

There were differences between the degree of elaboration of girls and boys. Girls were more likely to write vivid descriptions, using auditory and visual imagery (screaming kids; yellow fingers; tired, bored, and very stiff). They tended to be more specific such as "helping someone look for a tin of gravy." Boys' responses were more concrete and general such as "in a store," "serving someone." In those instances where boys were descriptive, they were more likely to be fantasy situations such as "firing a blistering, unstoppable slapshot" and "pulling out people's heart and brains."

In summary, there was little change from pretest to posttest on the elaborations of possible selves. Differences between girls and boys were more notable. The task itself may have needed more support or guidance in assisting children to mentally visualize or enact various scenarios.

Possible Me Tree

Additional information was collected from the experimental group with the Possible Me Tree lesson of the treatment. This activity was carried out in session one (Tree 1) and session six (Tree 2) and is described in Appendix B. Three girls and one boy were absent for one of

the sessions and two of the boys' trees were incomplete. The trees were analyzed to see if there were any differences from week one to week six and also to see if there were differences between boys and girls.

Children were requested to give two hopes and two worries for four important areas of their lives: free time, school, work, and family and friends.

There was no change in how the children expect to spend their free time from Tree One to Tree Two. Without exception the hopes in this area were for activities typical of children such as sports, biking, and Nintendo. Perhaps they were unable to see themselves having different leisure-time interests as adults or maybe they hoped to go on enjoying the same things as they do now. Worried free time activities of both boys and girls were frequently those of being bored, watching T.V., and for the girls, housework.

There were slight changes for girls and boys in the area of school. On Tree One the children's hopes were for particular subjects such as Science and Math or Gym and recess. On Tree Two they were more likely to mention university or finishing school as a hope. Similarly, with the worries, on Tree One they worried about getting in trouble and being bad. On Tree Two they were more likely to worry about failing or dropping out. In the area of jobs, girls were more likely to hope for such traditional occupations as nurse and teacher, although some other hopes

were for orthodontist, marine biologist, and police officer. Boys most often selected hockey player and police officer. Other hopes of boys included prime minister and movie star. The job most worried about by both girls and boys on Tree One and Tree Two was working in a store. Girls often worried about male-type jobs such as garbage collector and mechanic. The only female-type job boys worried about was a teacher.

In the area of family and friends, boys and girls had hopes concerning their parents or hoped for a good family and good friends. Girls were much more likely to mention marriage and children. One girl hoped for a child but worried about marriage, while another girl hoped for one child but worried about having 10 children. Several boys mentioned as worries losing their family or having a bad family. Many of their fears seem to relate to children they know, perhaps people with whom they have interpersonal problems.

On the tree trunks children were requested to write things about themselves: what they know, what's important to them, how they act, things they are good at. Here, too, there were no outstanding differences between boys and girls or from Tree One to Tree Two. They listed things related to school, sports, and games under the headings "things I know" and "things I do well." Some examples were reading, riding my bike, play games, and do math. "Things that are

important to me" were largely the same for both girls and boys: family, friends, education, and pets. Under "how I act" girls and boys listed things such as caring, nice, happy, helpful, and sharing.

While there was a great deal of variety of answers on the Possible Me Trees, the major difference from Tree One to Tree Two was an increased mention by boys and girls about education, passing, and university or college. The main difference between boys and girls was that girls were more likely to fear male-type, usually low-status, jobs and more likely to hope for marriage and children.

CHAPTER 5

Discussion and Recommendations

The purpose of this study was to investigate the effect of a six-week, gender conscious, career awareness program on sex-role stereotypes and career aspirations of low SES Grade Five students. The treatment was found to have no significant effects, although there were some trends.

In the following discussion the results are organized according to the major topics of the study.

Differences Between Boys and Girls

As was predicted, boys were more stereotyped than girls. These results are supportive of previous research (Awender & Wearne, 1990; Etaugh & Liss, 1992; Henderson, Hesketh, & Tuffin, 1988; Women's Bureau, 1986). Girls were more likely to select other-sex typed jobs than boys, although these were usually jobs that are approaching the neutral category; for example, lawyer and veterinarian. In fact, according to Statistics Canada (1986) for Canada as a whole, veterinarian is neutral, while for Newfoundland it still remains male-dominated. Other male-dominated jobs selected by girls were those in which women have been employed in small numbers for a generation or more (e.g., police officer and physician). It was interesting to note that three of the girls in the Experimental group chose

coach/sports instructor as a posttest hope. The school they attend has a female physical education teacher who coaches intramural sports. It seems that this may have been an influence on these girls who otherwise are still so traditional.

Boys were more likely than girls to choose fantasy type occupations such as NHL superstar, movie star, and FBI agent. Boys were also more likely to select jobs such as executive or president, while girls' choices were more likely to be boss or manager.

Boys and girls worried about many of the same jobs such as store clerk, waiter/waitress, and garbage collector. But girls also worried about more other-sex typed jobs than boys, and where boys' worries were usually of low status jobs (taxi driver, gas attendant), girls worried about both high and low status jobs such as engineer, judge, and factory worker. The results lend support to Stockard and McGee's (1990) finding that boys are more influenced than girls by a job's level of prestige and income. Also, as shown by Baker (1985) and Women's Bureau (1986), girls' choices of occupations are from a more restricted range than boys, and girls are less concerned than boys about advancement or managerial positions (Baker, 1985).

The open-ended responses on the Possible-Me Tree showed that girls were more likely than boys to include marriage and children in their hopes. The dual aspect of marriage

and career, as described by Betz and Fitzgerald (1987), is being shown at this early age.

Differences Between Experimental and Control Groups

There were differences between the Experimental and Control groups on the pretest and these differences were still evident on the posttest. These differences were especially noteworthy among the girls. The Experimental group saw more male-dominated occupations as appropriate for girls on both the pretest and the posttest. But the Control group saw more male-dominated occupations as appropriate for themselves on both the pretest and the posttest. This suggests that the Experimental group may have been more traditional at the outset, in their expectations for themselves, than the Control group and the effect of the intervention was not strong enough to change this. Views which children hold for themselves seem to be more enduring than views which they hold for boys or girls in general (Bigler & Liben, 1990; Women's Bureau, 1986).

On the open-ended questionnaire of the Possible Selves Survey, girls in the Control group more often listed jobs such as physician/surgeon, scientist/biologist, whereas girls in the Experimental group were slightly more likely to list secretary/typist and hairdresser/stylist. It was disappointing to note that on the posttest, four girls in the Control group hoped to be a scientist/biologist, whereas

the Experimental group girls went from two girls with this hope at pretest to one girl at posttest. One of the guest speakers was a marine biologist who seemed to interact well with the children but it seems that this had no impact and may show support for Guttentag and Bray's (1976) notion that some interventions can increase stereotypes, although Guttentag and Bray's study found that interventions were likely to increase stereotyped attitudes in adolescent boys only. They suggest that interventions be thorough and well rounded, as small doses of new ideas may produce unfavorable reactions. Kelly and Smail (1986) found that children who endorse sex stereotypes showed less interest than other children in learning about areas of science traditionally associated with the opposite sex. There is also support for the idea that children with more stereotyped attitudes show significantly better memory for stereotypic rather than counterstereotypic information, while children with less stereotyped attitudes do not (Martin & Halverson, 1983; Signorella & Liben, 1984).

Another difference between the two groups of girls was the increase in the Experimental group's worries about female-dominated occupations on the posttest. It seems that the intervention may have created some concerns here but was not strong enough to bring about an increase in hopes and expectations.

The differences between boys in the Experimental and Control groups did not seem to be as marked as between the two groups of girls, according to their responses on Part Two of the Possible Selves Survey. It should be noted, also, that there was very little difference in responses to the open-ended section of the Possible Selves Survey (Part One) for the Experimental and Control groups, from pretest to posttest. Similarly, O'Dowd and Beardslee (cited in Gottfredson, 1981) report that even with college students, questions about jobs they hoped to have, elicited only vague responses. Furthermore, Day et al. (1992) with their Possible Selves intervention reported little success in modifying children's responses to open-ended questions. This could be related to children's writing ability, as teachers often comment on the distaste many children seem to have for putting their ideas on paper, particularly when they are not being called upon to reproduce something they have previously studied.

Treatment

While there were changes in the intended direction from pretest to posttest, as shown by the multivariate results, the group intervention was found to have no significant effect on the dependent variables. Boys in the Experimental group showed an increase in hopes from pretest to posttest, while girls in the Experimental group increased their

worries about female-dominated occupations. Changes in the Possible-Me Trees indicate a greater focus on the future and school experiences at the end of the program as compared to the beginning of the program. However, this activity did not have a Control group comparison. There were several difficulties with the study which preclude ruling out the effectiveness of such an intervention. First, subjects were not randomly assigned to groups and groups were not randomly assigned to treatment. In using a quasi-experimental, non-equivalent control group design the lack of random assignment adds sources of invalidity not associated with a true experimental design (Gay, 1987). Threats to internal validity in this type of study include selection interaction and regression of scores. A threat to external validity is pretest-treatment interaction (Gay, 1987). Selection interaction occurs when already formed groups are used and refers to the fact that the groups may be different before the study begins. Regression refers to the tendency of subjects who score highest on a pretest to score lower on a posttest, and subjects who score lowest on a pretest to score higher on a posttest. Pretest-treatment interaction occurs when the pretest sensitizes or alerts subjects to the nature of treatment.

In conducting class size groups of this type within the school system, schedules and co-operation of teachers have to be considered, and for this reason intact classes were

used in the study and the treatment was not randomly assigned. As a result of this lack of random assignment, there were differences between the Experimental and Control groups at the outset, as indicated by the results. The Control group seemed to be somewhat less traditional than the Experimental group on both the pretest and the posttest. This was particularly noteworthy for girls in the Experimental group concerning their personal hopes and expectations which, as was mentioned earlier, are more resistant to change.

A further problem was the possibility of contamination between groups. The two groups were in adjacent classrooms and there most likely would have been interaction among students concerning the experimental program. For example, boys in the Control group listed as posttest worries such things as "a girl's job" and "nurse," whereas these were not mentioned on the pretest.

In spite of these difficulties, an explanation for why the intervention had no effect can only be speculative. The lack of experimental data of this type with elementary age children adds to the difficulty in trying to sort out reasons for the results. It may have been that the program was not long enough to counteract the gender stereotypes of these particular children. Two of the six sessions were used for the Possible-Me Tree activity and, while this was a useful exercise to enable students to explore their hopes

and fears concerning the future, there was no new information given during these sessions. Alternatively, the nature of the program may not have been adequate to effect changes. Perhaps an experiential approach with more personal involvement, such as role playing and fantasy, would have been more appropriate. As was mentioned in Chapter 4, changes did occur in the intended direction. The changes, however, could not be attributed to the treatment, since they occurred with the Control group, as well as the Experimental group.

Another possible explanation for the failure of the intervention could be related to the gender of the researcher. Katz and Walsh (1991) found that male examiners had a significantly greater effect in eliciting atraditional behavior from eight and eleven year old children. They suggest that the greater perceived power of males is more effective in legitimizing cross-sex behavior in children. Furthermore, Guttentag and Bray (1976) found that in interventions conducted by classroom teachers, the personality of the teacher was the single most important variable in effecting change. Teachers who were more enthusiastic about the subject matter were more likely to convey this attitude to their students. It is possible, though unpleasant to admit, that this researcher was unable to generate the necessary enthusiasm in the children in order to bring about change in their attitudes.

Except for the guest speakers, specific male-dominated jobs were not discussed in great detail in terms of their appropriateness for females. The discussion focused more on jobs in general as being appropriate for females and for males, based on a person's interests rather than gender. However, according to Sullivan (1975) and Savenye (1990), subjects did not generalize counterstereotyped information on occupations discussed in their studies to other occupations. This suggests that children may need to be provided counterstereotypic information for individual occupations, although Bigler and Liben (1990) found that children were able to generalize information presented in their intervention to a set of novel occupations and activities. However, Bigler and Liben stress the importance of teaching children directly about nonsexist criteria for determining who can perform different occupations and activities, rather than merely presenting counterstereotypic examples. The present study did include some discussion on this issue but obviously it was not enough. The children appeared to have little interest in non-traditional jobs, and perhaps need opportunities to see that interest they have now may change with new experiences.

Another cause for concern is that the children in this study were mainly from low SES families. It may be that they require programs specifically designed to meet their needs. As was previously discussed, a more experiential

approach may have proven more beneficial. There would likely be very few non-traditional role models for these children at home or in their immediate neighborhood and the information-discussion format of the program may have been insufficient. Research shows that children in lower SES groups are more stereotyped than children in middle class groups (Awender & Wearne, 1990; Schlossberg & Goodman, 1972). Gottfredson (1981) refers to low SES children as having "foreshortened horizons" and Albrecht (1976) suggests that it will be more difficult to broaden the horizons of children from less educated families. It is clear from their responses that the children in this study have worries about lower class jobs, but they may not have the supports and/or resources for hopes and expectations to counteract them.

Implications for Research

Bigler and Liben (1992) and Martin, Wood, and Little (1990) are critical of research that has been done to date on the development of gender stereotypes. They claim that most researchers have focused on a very narrow aspect of gender stereotyping, that is, how children learn to associate gender with sex-typed characteristics and occupations. There is quite a large body of research which documents children's knowledge of societal stereotypes. Researchers are now seeing the need to take a

multidimensional view of the gender concept (Biernat, 1991; Bigler & Liben, 1992; Hort, Leinbach & Fagot, 1991; Martin et al., 1990). Such a view would look at gender stereotypes as being comprised of different components such as personality traits, physical traits, roles, occupations, and sex role orientation (Biernot, 1991; Martin et al., 1990). Martin (1993) and Martin et al. (1990) claim that research is needed to assess how children's gender-related knowledge influences behavior. Because children have counterstereotyped information does not mean that they will put this into practice, and conversely because they know society's stereotypes, does not mean that they approve of them. Martin (1993) presents new directions for research to increase our understanding of the ways in which cognition, biology, and socialization work together to pattern gender-role development of children. Based upon earlier work by Martin and Halverson (1981) and Deaux and Lewis (1984), she has adopted a way of conceptualizing stereotypes called the component model of stereotypes. This model provides a means to reconsider developmental changes in children's acquisition of gender stereotype knowledge. Martin (1993) also proposes studying children's in-depth gender-role knowledge as a means of understanding how and why children engage in sex-appropriate behavior. There is also a need for more refined measures for research in this area since results vary so much according to age, sex, mode of inquiry,

and aspect of sex-typing being studied (Signorella, Bigler & Liben, 1993; Tremaine, Schau, & Busch, 1991).

Given the contradictory results of intervention studies that have been devised so far, what may be needed is a whole new approach to intervention. Bigler and Liben (1992) have found support for the role of multiple classification skills in affecting children's gender stereotyping. Children were taught multiple classification skills with a set of pictures depicting men and women in gender stereotyped occupations (e.g., male and female firefighters). Subjects were asked to sort the cards by gender, then by occupations. Subjects were then taught rules for who can perform the sex-typed occupations used in the classification training. They were taught the irrelevance of gender coupled with the relevance of two criteria: a person liking a job, and a person learning how to perform the job. Bigler and Liben found that children with more advanced classification skills gave a greater number of egalitarian responses to a set of questions about who could have a particular trait (only men, only women, both men and women). However, their study does not address the issue of reducing gender stereotypes in children's personal choices, which is really what the problem seems to be.

Coulter's (1993) review of current research on the effects of gender socialization paints a bleak picture of the conditions of society for many females. This review

highlights the need for changes in the larger social structure including the schools which are largely responsible, along with families, for socializing children. At the school level this will require the development of long-term school based programs to counteract stereotyped views which are being reinforced for children in their daily lives, through the media and within their families, their schools, and their neighborhoods. This is a task which will not be accomplished easily since research shows that elementary age children forget or distort 40-50% of counterstereotypic information (Cordua, McGraw, & Drabman, 1979; Koblinsky, Cruse, & Sugawara, 1978). Drabman et al. (1981) found that children at preschool, first and fourth grades reversed videotaped gender information (male nurse, female doctor) to fit in with their stereotyped views. Seventh graders in the same study correctly identified genders, but one week later were unable to significantly recall the correct gender. It seems that their sex-role stereotypes had altered their long-term memory. More recently, Bigler and Liben (1990) found that, while children who had received an experimental intervention remembered significantly more nontraditional story occupations than did children in the control group, they were still remembering only slightly over half of the non-traditional occupations. In contrast, they had almost perfect recall of the traditional occupations in the stories. It is little wonder

that short-term interventions, such as the one in the present study, have such short-term effects if any at all.

Recommendations

Based on the results of this study and the review of the literature, several recommendations are made for further research and development.

1. There is a need for research to evaluate programs and materials designed to counteract gender stereotypes. Many of the materials available for use in the classroom have not been evaluated. Given the conflicting results of intervention studies and the difficulty in changing stereotyped attitudes, materials, and programs should be evaluated empirically.
2. Assessment measures are needed, such as the one used in the present study, to determine children's personal preferences, as well as their general ideas and attitudes about what is appropriate for males and females.
3. New intervention programs need to be developed with a view to integrating gender within the self structure, including present views, skills, and goals. Programs need to be designed specifically with a view to changing children's personal choices. These programs should be carefully evaluated.

4. Intervention programs should be introduced to children by the age of seven or eight years and should continue throughout the whole school career. In this way there would be more likelihood of matching the number of stereotyped experiences children encounter in their daily lives, through the media, their schools, and society in general.
5. Research such as the Acapella study (CTF, 1990) on adolescents should be conducted with elementary age children to gather information on young children's lives. This study was conducted all across Canada and was designed to assess the realities, concerns, and barriers faced by adolescent females in Canada today. The results are being used to provide direction in planning new strategies for gender equity. It would be useful to gather this type of information on younger children and on males, as well as females.
6. There is a need for more efforts to raise awareness of males at all age levels about the negative impact of traditional gender socialization on themselves, as well as on females.
7. Female students need to have accurate information concerning the economic situation for many young women today. Studies (Baker, 1986; CTF, 1990) show that adolescent females still have an unrealistic picture of their futures. This is not to suggest that young women

should not be permitted to have their dreams, but they must be able to make informed decisions when planning for their futures.

The present study points out the rigidity of gender role stereotypes of Grade Five students and indicates the difficulty in trying to change these views. It also shows the inadequacy of research in this area, in spite of the massive amount of research that has been done in the last twenty years. If we are to expect change, a major research and development campaign must be implemented in this area. We cannot simply wait for society to change.

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APPENDIX A

FISCHER'S (1983) DEVELOPMENTAL LEVELS

Fischer's (1983) Developmental Levels

First Sensorimotor Level. This appears at 2 to 4 months of age and involves the emergence of sensorimotor intelligence and the first social-emotional responsiveness to a caregiver. During this period the infant's behavior is organized around single actions without any differentiation of self from the outside world.

Second Sensorimotor Level. This emerges at 7 to 8 months when babies begin establishing attachment relationships with their caregivers. They begin imitating the actions and vocalizations of others in social interactions.

Third Sensorimotor Level. At 11 to 13 months babies begin to understand that objects, people, and events have constant properties. They start to use single words in speech and establish a more stable relationship with caregivers.

Representation. At 18 to 24 months children learn a large number of words and begin to for many two- and three-word sentences. A wide range of cognitive and social skills are evident in this period.

Simple Relations of Representations. At 4 to 5 years of age children begin relating one social category to another, such as doctor to patient. In very simple

situations they are able to understand that their own perspective is different from someone else's.

Concrete Operations. At 6 to 8 years children begin dealing with more complex relations of representations. They become capable of joining multiple representations in complex constructs. Similarly, they can attribute multiple, simultaneous emotions to two people interacting with each other (Harter, 1982).

Beginning Formal Operations. At 10 to 12 years the preadolescent develops the capacity to deal with abstractions, such as justice, honesty and nonconformity. According to several theories, the reorganization occurring at this point is greater than that of most of the other levels. One hypothesis is that it begins a new series of reorganizations (Case, 1980; Fischer, 1980).

Later Formal Operations. At 14 to 16 years of age adolescents are able to deal with more complex abstractions dealing with arithmetic concepts and coordinating political concepts.

(Fischer, 1983, pp. 11-14)

APPENDIX B

GENDER CONSCIOUS CAREER AWARENESS PROGRAM

Session 1: Possible-Me Tree

Objective

To introduce the students to the Possible-Me Tree metaphor in order to increase their ideas about their hopes and fears for the future.

Relaxation Exercise

Tell the students that they are going to use their imaginations today. Have them sit comfortably, put their heads down on their desk and close their eyes. (Play quiet relaxing music.) Say to the students: "Imagine yourself out in the country, sitting under a big tree ... the sun is shining on you ... the wind is blowing through the leaves of the tree. You feel very relaxed. You're very sleepy now and you doze off for a while under the tree.

"Now I want you to imagine that you are the tree. You are this big, strong healthy tree. We'll call your tree a "Possible-Me Tree." This Possible-Me Tree represents you and the important areas of your life--your hopes and worries for the future. If your Possible-Me Tree is healthy and strong, you are healthy and strong. If your treo is weak, you are weak.

Now I want you to think about the different parts of your tree. You have a trunk--branches--and leaves. Think about your trunk now. Think about your tree having a big,

strong, healthy trunk. Now think about what the trunk does for your tree. It protects it, nourishes it and supports its branches.

Think about your branches. These represent different areas of your life--your family and friends, your education, jobs you might have some day and the things you like to do in your free time.

Now think about the leaves on your tree. Your tree has both green and red leaves. Think about your tree with lots of big, healthy leaves on its branches. The green leaves are things you hope to have in your life--these are your goals. The red leaves are things you worry about--the things you want to avoid. If you have clear goals and clear worries you are more likely to get where you want to be and to avoid becoming what you don't want to be.

Picture yourself now as a strong healthy tree."

The children may open their eyes and sit up.

Art Activity

Pass out a Possible-Me Tree to each child. "Now we're going to make these Possible-Me Trees strong and healthy like the one you saw in your imagination.

The trunk represents the skills you have now, things that you know. The more things you know, the more skills you have, the stronger your trunk will be."

[Have these 4 headings on a chart or board.]

Things you know

How you act

What's important to you

Things you do well

Encourage the children to come up with 2 or 3 ideas for each category and use them to fill in their trunks. Point out that these skills they have now (reading, spelling, etc.) are the things that support what they will become. These are the things that will make them strong. This is a good time to boost self-esteem.

Branches

"Now let's think about the branches on our Possible-Me Trees. What are the branches like on a healthy tree? (strong, healthy, etc.) Why do you think it's important to have strong branches? (to keep growing, to support the leaves). In thinking about your tree, the branches are like the different areas of your life. There are different schools you may go to (college, etc.), your relationships with your family and friends, jobs you might have, and ways to spend your free time.

These 4 areas of your life are represented by the branches on your tree."

Emphasize the strength of the branches and ask for suggestions for each area.

Leaves

Now think about the leaves on your tree. Think about your tree having lots of healthy leaves. On each of your branches you will have red and green leaves. I want you to write down your goals, things you hope for, on the green leaves, and things you want to avoid on the red leaves." Remind the children again, as in the relaxation exercise, why it is important to have clear goals and to know what they want to avoid.

"These are your Possible-Me Trees. They represent everything you are now and what you want to achieve and avoid in different areas of your life."

Session 2: Career Awareness

Objectives

- To acquaint students with the terms "job," "career" and "occupation."
- To acquaint students with a variety of occupations.
- To help students realize that occupations develop to fulfill social needs.
- To develop appreciation for the worth and dignity of all types of occupations.

Activities

Begin the session with the terms job, occupation and career listed on the chalkboard. Ask for volunteers to tell what each term means. Help them formulate a definition for each term.

Ask students to think of the very first occupations people had and why they were necessary. List these on chart paper. Next, have the students think about occupations of people they know beginning with family, friends and neighbors, and extending to as many occupations as they can think of. When necessary, have students explain occupations that are unfamiliar. Discuss briefly how different occupations satisfy different needs, e.g., food, shelter, entertainment.

Play the game "What would happen if?" This game is intended to stress the necessity for all types of workers. Begin by asking "What would happen if there was a big fire and there were no firefighters?" The student who provides an answer gets to pose the next question. This game is continued to include many occupations. It will be necessary from time to time for the teacher to ask the question to ensure that certain occupations are included. This is the time to show the necessity of jobs that are often devalued, as well as show how occupations are interrelated.

Session 3: Gender-Role Stereotypes

Objectives

To provide students with opportunities to:

- understand the concept of gender stereotyping.
- recognize that such stereotyping can affect their career decisions.
- recognize that these decisions can have a negative impact on women.
- recognize that male and female roles can be combined.

Activities

Display a chart with several statements printed on it such as:

Men should be bus drivers.

Women should be secretaries.

Women are weak and should do only light work.

Men are strong and can do heavy work.

Read the statements and ask the students what they think about them. Print the term "gender stereotype" on the chalkboard and make sure that students understand that general assumptions about men and women, particularly when they are stated in terms of "Men are ..." or "Women are ..." are examples of stereotyping.

Discuss the limiting effects of gender-role stereotyping on career decisions. Point out that

differences in behavior exist mainly because people learn to behave differently and that people learn a variety of behaviors considered appropriate for their gender from parents, school, television, movies and books. This begins when they are babies and continues throughout their lives.

Provide information about the economic situation many women face. This information can be presented in the form of a list of statements on chart paper:

- Women earn 64¢ for every $1.00 men earn.
- 82% of single parents are women.
- Men work in about 480 different fields. Most women work in approximately 20.
- The fastest growing poverty group today is women.
- In 1989 of the 532 students at the Marine Institute, 498 were males, 34 were females.

(Ripley & McGee, 1990)

At this point posters are displayed from a series by Women in Science and Engineering (WISE). These posters show women in a wide variety of non-traditional jobs. Emphasize how women and men can become trapped in undesirable economic situations as a result of not planning for their future.

This lesson will conclude with the film "The Fable of He and She." This film provides a humorous view of life on a mythical island where male and female roles are clearly defined until unusual events force both sexes to assume different roles for survival.

Sessions 4 and 5: Guests and Video

Objective

To expose the students to women in non-traditional occupations.

In Session 4 a female firefighter spoke to the students. In addition, a short segment of the video, Wise Choices, was shown. It depicted a female auto mechanic (WISE, 1990), both on the job and at home. This mechanic is also a fashion model and there were some clips of her engaged in this activity.

In Session 5 a female marine biologist visited the class.

Both guest speakers talked about how they became interested in their chosen fields, emphasizing obstacles they faced. The speakers urged students to follow their interests in pursuing a career, regardless of whether it is considered "women's work" or "men's work."

Both speakers allowed time for questions and discussion.

Session 6: Review and Possible-Me Tree

Objective

This session consisted of a brief review of the previous sessions. The students then repeated the Possible-Me Tree exercise of Session 1. The aim of the lesson was to provide the students with another opportunity to clarify their hopes and fears, as well as to see if the program had influenced these hopes and fears.

APPENDIX C

PRETEST POSTTEST INSTRUMENTS

Name: _____

Code: _____

Date: _____

(This page to be removed and destroyed upon completion of the questionnaires.)

STEREOTYPE SURVEY

Please mark these statements True (T) or False (F).

Boys are smarter than girls. _____

Girls should clean house. _____

Some jobs, like airplane pilot, should be done by men. _____

Boys are better at sports than girls. _____

Women can solve problems better than men. _____

A woman needs a man to take care of her. _____

Women should not be allowed to do men's jobs. _____

Men are more successful than women. _____

Men should be paid more for working than women are paid. _____

Men are better doctors than women. _____

Women are better secretaries than men. _____

Boys should not cry. _____

Girls do not need to be strong. _____

Boys need an education more than girls. _____

Men should not be allowed to do women's jobs. _____

A woman's place is in the home. _____

The father should be the boss in the family. _____

A woman should not be the boss of a man. _____

Girls are better typists than boys. _____

Men work harder than women. _____

Mothers should do what fathers tell them. _____

Boys are better at math than girls. _____

Women talk a lot more than men. _____

Men can figure things out better than women. _____

Girls are better at art and music than boys. _____

Possible Selves Occupational Survey: Part One

DIRECTIONS: *All of us think of the future sometimes. We might think about what we will do or what we will probably be like. At other times we might think about things we are afraid we might do or ways we are afraid we will turn out. Below are some questions about the kinds of jobs you think about for yourself in the future.*

1. What job or jobs do you **HOPE** to have in the future?

2. What job or jobs are you **WORRIED** you might have in the future?

3. What job or jobs do you really **EXPECT** you will have in the future?

HOPE: *Write on the line below the first job you listed for "What job or jobs do you HOPE to have in the future".*

JOB 1B _____

Where are you?

_____

_____

_____

_____

What is around you?

_____

_____

_____

_____

What are you doing?

_____

_____

_____

_____

Anything else?

_____

_____

_____

WORRIED: ***Write on the line below the first job you listed for "What job or jobs are you WORRIED you might have in the future".***

JOB 2B _____

Where are you?

_____

_____

_____

_____

What is around you?

_____

_____

_____

_____

What are you doing?

_____

_____

_____

_____

Anything else?

_____

_____

_____

EXPECT: ***Write on the line below the first job you listed for "What job or jobs do you EXPECT you will have in the future".***

JOB 3B _____

Where are you?

_____

_____

_____

_____

What is around you?

_____

_____

_____

_____

What are you doing?

_____

_____

_____

_____

Anything else?

_____

_____

_____

Possible Selves Occupational Survey: Part Two

DIRECTIONS: *We want to find out about what jobs children think are possible for girls, boys and for themselves. Below is a list of jobs and you are asked to check how much it is possible for: a girl, a boy, yourself.*

SAMPLE ITEM:

	THIS IS POSSIBLE FOR A GIRL			THIS IS POSSIBLE FOR A BOY			THIS IS POSSIBLE FOR ME		
JOBS	YES	MAYBE	NOT AT ALL	YES	MAYBE	NOT AT ALL	YES	MAYBE	NOT AT ALL
1. Singer									

	THIS IS POSSIBLE FOR A GIRL			THIS IS POSSIBLE FOR A BOY			THIS IS POSSIBLE FOR ME		
JOBS	YES	MAYBE	NOT AT ALL	YES	MAYBE	NOT AT ALL	YES	MAYBE	NOT AT ALL
1. Architect									
2. Army Officer									
3. Auto Mechanic									
4. Beautician									
5. Marine Biologist									
6. Carpenter									

	THIS IS POSSIBLE FOR A GIRL			THIS IS POSSIBLE FOR A BOY			THIS IS POSSIBLE FOR ME		
JOBS	YES	MAYBE	NOT AT ALL	YES	MAYBE	NOT AT ALL	YES	MAYBE	NOT AT ALL
7. Chef									
8. Chemist									
9. Dental Assistant									
10. Dentist									
11. Electrician									
12. Elementary Teacher									
13. Engineer									
14. Farmer									
15. Flight Attendant									
16. Florist									
17. Home Economics Teacher									

	THIS IS POSSIBLE FOR A GIRL			THIS IS POSSIBLE FOR A BOY			THIS IS POSSIBLE FOR ME		
JOBS	YES	MAYBE	NOT AT ALL	YES	MAYBE	NOT AT ALL	YES	MAYBE	NOT AT ALL
18. Interior Decorator									
19. Lawyer									
20. Librarian									
21. Minister/Priest									
22. Physician									
23. Physicist									
24. Police Officer									
25. Registered Nurse									
26. School Principal									
27. Secretary									

APPENDIX D

CORRESPONDENCE

140 Circular Rd.
St. John's, NF
A1C 2Z5
October 5, 1992

Ms. Geraldine Roe
Assistant Superintendent, Curriculum
Roman Catholic School Board for St. John's
Belvedere, Bonaventure Ave.
St. John's, NF
A1C 3Z4

Dear Ms. Roe:

Further to our telephone conversation of October 2, 1992, this is a written request for permission to conduct my research project at Holy Cross School where I am Educational Therapist.

I have worked extensively with children, having been a teacher for nineteen years with the Port au Port Roman Catholic Board and a Guidance Counsellor for the past two years with your board. I am completing the final component of my Master's thesis in the Educational Psychology Programme at Memorial University.

I have developed a gender conscious, career awareness program for grade 5 level students. This is a 6-week program with one 45-minute session per week. I will be selecting one class to view the program. One other class will be given the questionnaires but not the program. However, all grade 5 classes at Holy Cross will have the opportunity to take part in the program after the study is completed.

My proposal has been approved by the Ethics Review Committee at Memorial. I am enclosing the program outline and a copy of questionnaires for your perusal. Letters of explanation will be sent to parents. A copy is enclosed.

All information collected will be treated with complete confidentiality and no child or school will be identified.

Thank you for your attention to this matter.

Sincerely yours,

Sheila Sullivan

Letter to School Board

140 Circular Rd.
St. John's, NF
A1C 2Z5
October 5, 1992

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Assistant Superintendent, Curriculum
Roman Catholic School Board for St. John's
Belvedere, Bonaventure Ave.
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My proposal has been approved by the Ethics Review Committee at Memorial. I am enclosing the program outline and a copy of questionnaires for your perusal. Letters of explanation will be sent to parents. A copy is enclosed.

All information collected will be treated with complete confidentiality and no child or school will be identified.

Thank you for your attention to this matter.

Sincerely yours,

Sheila Sullivan

Holy Cross School
Ricketts Rd.
St. John's, NF

Dear Parent/Guardian:

I am the counsellor/therapist at St. Patrick's and Holy Cross schools. I am completing my Master's thesis in Educational Psychology at Memorial University. My research is in the area of sex role stereotyping and career awareness and I am asking your support with a project in your child's class. My study has been approved by your School Board and by the Ethics Review Committee at Memorial.

I would like to conduct a six-week career awareness program that will attempt to make children more aware of sex role stereotyping in occupations. The goal of the program is to increase children's interest in non-traditional jobs and increase the number of occupational choices they see as available for themselves.

The program will consist of six 45-minute sessions to be held during regular class hours. It will be in the form of discussions, films and guest speakers. Students who participate will answer questions about jobs they hope to have in the future, and questions about the appropriateness of particular jobs for males and females. Information to be collected includes grade, age, gender and nature of parent's/guardian's work.

No child's name or any other identifying information will be used in reporting this study. Each child will be given a code number and the information collected will be used to report group results only.

I sincerely hope you will support this study. Please contact me at Holy Cross (579-0443) or St. Patrick's (579-2820) if you would like more information. If at any time you wish your child to be withdrawn from the study, please contact me or your child's teacher.

Enclosed is a consent form. Please sign this form and return it to your child's teacher if you agree to have your child take part in the program.

Sincerely,

Sheila Sullivan

Letter to Parents/Guardians

Holy Cross School
Ricketts Rd.
St. John's, NF
December 2, 1992

Dear Parent/Guardian:

I am the counsellor/therapist at St. Patrick's and Holy Cross schools. I am completing my Master's thesis in Educational Psychology at Memorial University. My research is in the area of career awareness, specifically stereotyping occupations of females and males and I am asking your support with a project in your child's class. My study has been approved by your School Board and by the Ethics Review Committee at Memorial.

I would like to conduct a six-week career awareness program that will attempt to make children more aware of stereotyping occupations. The goal of the program is to increase children's interest in non-traditional jobs and increase the number of occupational choices they see as available for themselves.

The program will consist of six 45-minute sessions to be held during regular class hours. It will be in the form of discussions, films and guest speakers. Students who participate will answer questions about jobs they hope to have in the future, and questions about the appropriateness of particular jobs for males and females. Information to be collected includes grade, age, gender and nature of parent's/ guardian's work.

No child's name or any other identifying information will be used in reporting this study. Each child will be given a code number and the information collected will be used to report group results only.

I sincerely hope you will support this study. Please contact me at Holy Cross (579-0443) or St. Patrick's (579-2820) if you would like more information. If at any time you wish your child to be withdrawn from the study, please contact me or your child's teacher.

Enclosed is a consent form. Please sign this form and return it to your child's teacher if you agree to have your child take part in the program.

Sincerely,

Sheila Sullivan

I would greatly appreciate your help by filling out the attached information sheet. This information will be used to report group results only. Thank you.

*Grade*_____

*School*_____

Birth Date _____
Month *Day* *Year*

Girl _____ *Boy* _____

Mother's or Guardian's Work _____

_____

Father's or Guardian's Work _____

_____

CONSENT FORM

I understand that my child's class will be participating in a 6-week gender conscious, career awareness program. I also understand that no name will be kept with the information collected and it will not be possible to identify any child in the study. I have been informed about the study and I understand that information will be reported on group results only.

I am aware that at any time I can ask that my child be withdrawn from the study.

☐ I hereby consent for my child _____ to take part in this program

☐ I do not want my child _____ to take part in this program.

Parent/Guardian signature: _____

(Please print name here): _____

Date: _____

APPENDIX E

OCCUPATIONS OF POSSIBLE SELVES SURVEY: PART ONE

Occupations of Possible Selves Survey: Part One

Male-Dominated (M)

Firefighter

Pilot

Entertainer

Athlete, referee

Dentist, orthodontist

Photographer

Media commentator/reporter

Politician

Executive, president, manager (store, newspaper)

Physical scientist, marine biologist

Plant/factory worker

Lawyer

Diver

Police officer

Delivery person/letter carrier

Armed forces

Carpenter

Bus/taxi driver

Mechanic/repair/electrician

Archeologist

Attendant (gas, animal)

Principal (school)

Mathematician

Veterinarian

Judge

Fisherperson

City council/outside worker/maintenance/garbage collector

Accountant

Artist/visual/writer

Printer (machine)

Farmer

Electronic engineer

Secret service/spies

Plumber

Security

Female-Dominated (F)

Waitress/waiter

Nurse

Secretary/typist

Hairdresser, stylist

Bank employee/cashier

Homemaker/housewife/mother

Personal care assistant/attendant

Elementary school teacher

Dental assistant

Physiotherapist/sex/sports therapist

Housekeeper/cleaner/janitor

Librarian

Girls' job

Pom pom girl

Neutral

Store clerk/keeper/sales clerk/confectionery stand

Chef/cook/baker

Sccial worker

Secondary school teacher

Athletic instructor

Physical education teacher/coach

Landlord (property management, SOC)

Toy maker (product fabricating, SOC)

Actor/actress/movie star

Not Classifiable (N.C.)

Millionaire

Kind that do a lot of work

Low paying job

Bum

Welfare

Unemployment