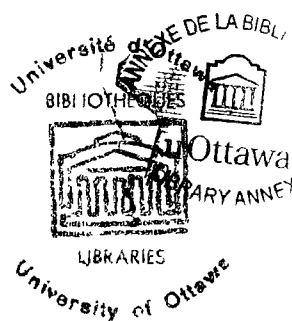


**IMPACT OF INSTRUMENTALITY-EXPRESSIVENESS AND SEX-ROLE ATTITUDES
ON WOMEN'S EXPECTATIONS
IN TRADITIONAL AND NON-TRADITIONAL TRAINING**



by

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**A thesis submitted to the School of Graduate Studies
of the University of Ottawa in partial fulfilment
of the requirements for the degree of
Doctor of Philosophy
School of Psychology**



Jharna Chatterjee, Ottawa, Canada, 1989

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Dedicated to
ROBI and SOMASHREE

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ABSTRACT

The purpose of this multidimensional study was to identify some of the major variables associated with women's vocational behaviour by focusing on women's actual participation in "non-traditional" (less than 25% female work-force) occupational training. It examined the sex-role attitudes, instrumental-expressive traits, values, value-attainment expectations through life-roles, perceived peer-attitudes, perceived difficulties in pursuing a non-traditional career, and performance of 151 female trainees in "non-traditional" areas. The comparison group consisted of 135 female trainees in Nursing/Nursing assistance - "traditional" occupational areas for women. The respondents were requested to fill out, on a voluntary basis, an hour-long questionnaire booklet assessing the variables mentioned above. As predicted, women in the non-traditional programs held more egalitarian sex-role attitudes, attached greater importance to the values Autonomy and Creativity, and expected more to attain the values Autonomy and Risk through their work-role than did women in Nursing programs. In comparison, women in the Nursing program gave more importance to the values Altruism, Social Interaction and Social Relations and expected more to attain the values Altruism and Social Interaction through their work-role. These nursing and nursing assistant students also perceived their peers to hold more traditional sex-role attitudes than the Trades and Technology trainees did.

There was a significantly higher frequency of High instrumental-Low expressive women in the Trades and Technology programs than in the Nursing programs. Among the Trades and Technology students,

those having more egalitarian sex-role attitudes had higher Grade Point Average than those having less egalitarian sex-role attitudes. Contrary to expectations, women in the Trades and Technology programs reported perceiving greater difficulties involved in pursuing a non-traditional career than did those in Nursing. A hypothesis regarding higher value-attainment expectations through work and student roles rather than through family, leisure, and citizen roles, on behalf of high-instrumental women vs. low instrumental women, was not confirmed. Results of supplementary Discriminant Analyses, Multiple Regression Analyses and a Factor Analysis were in general, supportive of the theoretical rationale of the study.

The findings were interpreted as providing evidence regarding the significance of sex-role attitudes, values, value-attainment expectations and perceived peer-attitudes in women's participation and performance in "non-traditional" vocational training programs. The study also reflected the need for measurement specificity, as when values were assessed in the context of a specific life-role, the predicted differences between the Traditional vs. Non-traditional trainees were revealed to a greater extent, than when contrasts were made between value-priorities in general. The theoretical and social implications of these and other findings (e.g., perceived difficulties in pursuing a non-traditional career) were discussed in the light of Super's Self-concept theory, Caplan's idea of Person-Environment fit, and the notion that sex-role attitudes and instrumental/expressive traits can be thought of as a filtering mechanism that portrays certain options as appropriate, and some others, as not appropriate routes leading individuals to the fulfilment of their life-objectives.

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INTRODUCTION

The purpose of the present research project was to gain insight into women's vocational behaviour in areas where traditionally only men have worked, by focusing on the beliefs, attitudes, traits, experiences and scholastic performance of women in non-traditional vocational training programs, using those of women in traditional training programs as a comparison. The organizational context of this study was derived from the current labour market situation. The theoretical context for the proposed study has been inspired in part by Super's (1963) Self-concept theory of career development, and by theoretical work in the area of sex-role research (e.g., Canter, 1979; Spence & Helmreich, 1980; Kalin & Hodgins, 1984, and Eagly & Steffen, 1984). Throughout this study, 'traditional' occupations for women mean those occupations which comprise 95% per cent or more female workers, and 'non-traditional' occupations mean those occupations where female participation is 25% per cent or less.

Organizational Context

A dramatic and continuing trend in the increased rate of female labour force participation during the last two decades has led to a projected labour force participation rate by 1990 for women between the age-range of 25-54 as over 75% per cent. Up to the early seventies, most of this increase has occurred in clerical, sales and service jobs, but since the late 1970's women have been trickling into more diverse categories of occupations. Even with these changes, in 1985 nearly 60% per cent of employed women worked in three categories only: clerical, sales and service. Addition of

teaching, medicine and health-related jobs accounted for 78% per cent of female labour-force participants (Labour Canada, 1986-87).

Similarly, during the last three decades female labour force participation in the U.S. has increased from a meagre 34% per cent in 1950 to 54% per cent in 1984, and an accompanying diversification of occupational choices has been noted (Sandberg et al., 1987). Despite all this, the overall level of occupational sex-segregation has not changed much due to the fact that the already female-dominated fields have not only continued to remain so, but have increased in their rate of female-participation (Beller, 1985).

One of the measures suggested by the Canadian Advisory Council on Status of Women, or, abbreviated, CACSW, (1980) for improving this situation has been "to direct women into more non-traditional jobs" (p.5). But in order to maximize the effectiveness of such training programs, it is necessary to have a better understanding of the factors related to women's occupational development, and specifically, to women's participation in non-traditional jobs.

Self-concept theory of vocational behaviour:

Super (1980) has attempted to incorporate some very major social structural constraints in advocating a life-span, life-space approach to the study of career development, where "career" is defined as "the combination and sequence of roles played by a person during the course of a life-time". Thus, by placing the work-role in the context of other life-roles, Super's (1982) theory of vocational development became equivalent to a theory of self-actualization - or fulfilment of values - through a changing constellation of multiple

roles requiring different role-behaviours performed through the multiple stages of life. Vocational development, according to this theory, involves a process of developing and implementing a self-concept. Vocational self-concept, a sub-system of the general self-concept, evolves through self-exploration, self-differentiation, identification, role-playing and reality-testing (Super, 1963).

Reality-testing involves an interaction between self-concept and reality factors. It is a weighing of one's own abilities, interests, and personality traits against the reality of job opportunities and barriers, past achievements, societal norms and expectations. These may either confirm or disconfirm tentative vocational choices and educational plans, making consequent adjustments necessary. Thus, vocational realism reflects the self-actualizing potential of an occupational choice.

The societal allocation of the primary responsibilities for household work and child care on women has made women's occupational role non-equivalent to men's. The social variables affecting women's vocational development are also different than men's.

As Brizzi (1986) comments,

"Vocational realism cannot be considered separately from the messages inherent in the individual's socialization and in the different values and expectations society holds for individuals based on their sex." (p.227).

Super's multi-level multi-role life-span theory of vocational development, therefore, seems particularly applicable with respect to women. In recent years, Super (1982, 1984) has developed and refined his Life Role Inventory to meet the need for instruments to measure constructs associated with his theory.

In Super's view, different people are believed to attach varying

degrees of importance to their various roles, contingent upon the importance of their values, and the opportunities provided by the socio-economic structures for attaining those values through these roles. Why do different women seek the attainment of their values in different life-roles? Why, even within the same life-role ('worker'), do some women prefer traditional jobs, while some others choose non-traditional work?

Need for the Present Study

Policies aimed at correcting the current occupational imbalance are not likely to succeed if they are based on partial and incomplete answers to the persistent questions presented above. This fact is illustrated in a study (Thomas, 1980) which demonstrated that the reasons why women do not enter non-traditional occupations include anticipated negative attitudes of male co-workers, of family and friends, anticipated role conflict, incompatibility with a feminine self-concept, perceived inadequacy of education and ability, and lack of information. The need, therefore, for a simultaneous investigation of possible multiple determinants of women's vocational behaviour is of utmost importance at this point. The present research seeks to fulfil this need.

The first chapter contains the review of the literature and research hypotheses, followed by a detailed description of the participants, the research instruments, and the procedure followed for collecting data in the second chapter. The third chapter deals with the data analysis procedure and the results of the statistical analyses. The final chapter presents a general discussion of the results.

CHAPTER I

REVIEW OF THE LITERATURE

The review of the literature begins with a brief discussion of the major relevant concepts from the recent sex-role literature. This is followed by a detailed literature-review of the co-variate as well as of all the dependent variables, some of which are taken from Super's theory, and some from the sex-role literature. The chapter concludes with the theoretical rationale and the research hypotheses based on the reviewed literature.

Sex-role socialization

Socialization is a two-way process in which socializing institutions (school, work-setting, church) and agents (parents, teachers, peers) try to prepare individual members of the society for participation in social life. It involves acquisition of appropriate norms, attitudes, values, personality attributes and behaviour patterns (Clausen, 1968, Mortimer and Simmons, 1978). Sex-role differentiation refers to the allocation of different tasks, abilities, responsibilities, activities and structural positions in the society on the basis of one's gender (Spence & Helmreich, 1978). Sex-role expectations are the types of behaviours that are normatively expected by one's reference group on the basis of one's gender, and sex-role attitudes refer to the individual's cognitive-affective responses to these expectations - generally involving a certain degree of acceptance or rejection, on the part of the individual him/herself. A distinction needs to be made between these concepts and the concept of psychological sex-role identity.

Sex-role identity is "the cognitive representation of one's own sex-typed behaviour and functions, often (but not always) culminating in a global judgment of 'masculine' or 'feminine'" (Heilbrun, 1981, p.4). Sex-role socialization involves learning the social expectations, usually expressed in stereotypes (simple, overgeneralized, inaccurate preconceptions) regarding certain behaviour patterns based on the person's gender. Sex-role identity is based on the awareness of the individual meeting these social expectations in varying degrees (Emmerich, 1973).

In studies of sex-role stereotypes, men are generally found to be characterized as strong, independent, aggressive, ambitious and logical, and women as weak, dependent, passive, unambitious, illogical, gentle, tactful and expressive (Broverman et al., 1972). Williams and Best (1982) have provided evidence that in thirty countries, traits considered desirable in men represent a "competency" cluster, and traits seen as desirable in women represent a "warmth-expressiveness" cluster. Spence and Helmreich (1980) have similarly noted that the Masculinity Scale of the Personal Attributes Questionnaire (1978) measures socially desirable instrumental attributes which are stereotypically more characteristic of males than females. The Femininity Scale consists of socially desirable traits stereotypically more characteristic of females, and describe interpersonally-oriented expressive qualities (e.g., kind, tactful, aware of other's feelings). An androgynous individual possesses both 'masculine' and 'feminine' attributes in a high degree, and an undifferentiated individual possesses both in a low degree.

Occupational Sex-Stereotypes

Some historical variables occurring in the 1890's and early 1900's that contributed to occupational sex-segregation have been discussed by Boyd (1982). These are: exclusion of women from, or their limited participation in the labour market caused by trade unions, and protective legislation which limited the working hours and conditions, as well as established a minimum wage for women, creating an effective barrier against their entry into many blue-collar jobs. Kanter (1975), in describing the 'historical legacy' of American organizational theories, explains how 'masculine ethic' of rationality, abstract analytical abilities, authority, capacity to control emotions and similar traits associated with masculinity came to be regarded as more desirable for organizational effectiveness, and thus, for success in the occupational world. In contrast, women have been traditionally assigned a nurturant, expressive role of providing service, support, and help to others.

Even the Human-relations theorists, while comparing an organization with a 'family' rather than a machine, supported the concept of managerial authority, rationality, self-control as opposed to the qualities of sentiment, emotion, and social instincts in workers. The 'competency' cluster, or the instrumental attributes are associated with masculinity, and as the world of work has been primarily considered to be the world of men (Bernard, 1981), these qualities have been universally believed to be necessary for success in the occupational world in general, and male-dominated occupations in particular (Spence & Helmreich, 1980).

This is also consistent with Shinar's view (1975) that occupational stereotypes include associations of specific personality

attributes with different occupations, and that the perception of occupations as masculine or feminine appears to be mediated by sex-stereotypes. For example, occupations stereotypically associated with instrumental traits such as high levels of competence, rationality and assertiveness, are considered masculine, - therefore, non-traditional for women. Similarly, occupations associated with expressive or stereotypically feminine characteristics like nurturance, interpersonal warmth, dependency and passivity are most often regarded as traditionally feminine occupations.

In attempting to explain the incidence of occupational sex-stereotypes, Eagly and Steffen (1984) proposed that these stereotypical beliefs are caused by people's observation of the different distribution of men and women into different social roles. In their view, this proposition addresses the assumption of the 'kernel-of-truth' element in stereotypes. For example, home-makers are almost always seen to be women, and the majority of men are seen to be paid employees, in a higher status role than home-making. People may also perceive that the employee-role requires agentic attributes and the home-maker role requires communal attributes. These observations then will lead people to believe that men are agentic and women are communal. The research of Eagly and Steffen provided support for the differential distribution hypothesis, but not for the hypothesis regarding observed sex-differences in status. It clearly exposed as misattributions to gender judgments which should be predicated on social roles, emphasizing the importance of the social roles in which men/women usually engage, on gender-stereotypes of agentic vs. communal roles.

The social cognition model of occupational suitability judgments

(Kalin and Hodgins, 1984), on the other hand, suggests that when information regarding the personal characteristics of a stimulus person is minimal, the bias of sex-role congruency takes precedence. This means that an occupation is judged suitable only if the stimulus person's gender is sex-stereotypically congruent with the perceived characteristics of that occupation. But if adequate information regarding the personal characteristics of the stimulus person is available, then judgments of occupational suitability are based on whether these personal characteristics (traits relevant to job demands) are congruent with the perceived occupational characteristics, and information about the social category (i.e., gender) becomes less important. Empirical support for the model was provided by a study (Hodgins and Kalin, 1985) in which masculine and feminine characteristics of stimulus persons were found to be more salient in judgments of occupational suitability than the information regarding their gender. Sex-bias was observed, as predicted, in cases of neutral personal characteristics.

Gutek and Cohen (1987) have advanced a hypothesis of "sex-role spillover". It is believed to be facilitated by a highly skewed sex-ratio in a work situation, resulting in the work-role taking on many characteristics of the sex-role of the dominant gender. As Gutek (1988) explains, in organizations where a large majority of jobs are held by males or by females only, people tend to associate those jobs with that specific gender (male/female), because gender is an extremely salient social characteristic. In consequence, sex-role expectations related with that gender "spill over" to those jobs. Thus, male-dominated jobs are considered to involve traits like activity, rationality and aggressiveness, while female-dominated jobs

are associated with social-expressive traits. Supporting evidence comes from a study by Bridges (1987) who reported that college females perceived working women as more instrumental than nonworking women.

The common theme in all of the views discussed above is the pervasiveness of occupational sex-stereotypes which have been held responsible for inspiring normative beliefs in this respect from a descriptive to a prescriptive situation. Thus, it has the effect of reinforcing and, to a large extent, perpetuating the existing system of occupational sex-segregation. The prevalence of occupational stereotypes among senior high school students was documented by Lifschitz (1983), who cautioned that sex-role and occupational "stereotypes are both cause and effect, with changes in one stereotype system influencing and being influenced by other"(p.734). The next section presents a review of the literature showing the relevance of the dependent variables and the co-variate, leading to the theoretical rationale and the research hypotheses of the present study.

Dependent Variables

Values of Women in Traditional vs. Non-traditional Jobs

A key construct in the understanding of women's vocational behaviour in a novel domain is the incentive strength of various characteristics of the work situation. These work values as well as the priority accorded the various roles women hold in their life constitute a major set of dependent variables for this study. A central focus will be on which values are seen to be fulfilled

through which life roles.

In a study by Greenfeld, Greiner and Wood (1980), women in male-dominated fields were found to regard the values recognition, a high salary, authority and responsibility as important indices of success at work than being well liked or contributions to the welfare of others. Money or fringe benefits, a desire to work with one's hands, or working outdoors, proving equal capability of men and women, were mentioned as reasons for the pursuit of non-traditional work by women in research done by Stringer and Duncan (1985) and Lillydahl (1986).

In comparing the sex-role related behavioural preferences of female social science (traditional) and engineering (non-traditional) students, Galejs and King (1983) found that engineering students valued independence, career advancement and prestige more than the social science students did. Significant differences in values were found among female secondary school students who had indicated non-traditional, neutral or traditional future occupational aspirations for themselves (Young, 1984). Students who aspired to non-traditional occupations ranked the values courageous, imaginative and independent as significantly more important, and also ranked the values clean, forgiving and obedient as significantly less important than other students.

In a multidimensional study focusing on the characteristics of male and female high school students (N=650) in Israel majoring in traditional vs. non-traditional fields, Erez (1988) found that the females in traditional fields (secretarial/home economical) preferred social rewards (helping others, social relationships, contribution to society, more than those in non-traditional fields (mathematical/

physical sciences). The female students in the non-traditional vocational areas (electronics/mechanics), on the other hand, were more achievement-oriented, preferred job security and job autonomy more, and engaged less in sex-stereotyping than the females in traditional areas.

Though limited in number, the results of the above studies have indicated a consistent relationship between traditional occupational choices, and "expressive" values, and again, between non-traditional choices and "instrumental" values.

Sex-role identity: Expressive vs. Instrumental Traits

Sex-role identity would also appear to be a promising dependent variable for this study. It seems logical that the cognitive representation of one's sex-typed (masculine/feminine) characteristics and behaviour may be seen as more or less congruent with the fact that one is training for traditional or non-traditional jobs.

Gump (1972) distinguished between young women who derive their identity through traditional sex-role (other-oriented) and those who derive their identity through their own personal fulfilment (self-oriented, i.e., non-traditional sex-role), and observed differences in their future plans and goals. Self-oriented women less often than other-oriented women expressed finding a spouse as one of their goals, and strived more often toward the goal of academic achievement as a preparation for a career. Rand (1968) reported support for the hypothesis that career-oriented women were more masculine (psychologically) than home-making oriented women - who were more feminine.

Orlofsky and Stake (1981) examined the relative influences of

gender, and psychological masculinity/femininity on need achievement, performance self-esteem (agency-related), social self-esteem (communion-related), career and interpersonal orientation, and, expectation and preference for family financial responsibility. They found that psychological masculinity was associated with higher need achievement, performance self-esteem and lower fear of failure. Psychological femininity was associated with higher value placed on interpersonal orientation motivated by need affiliation and need approval. Gender was a good predictor only with respect to expected and preferred financial responsibilities, consistent with strong societal norm which assigns this role primarily to males.

Research by Yanico et al. (1978) showed that women in a non-traditional area of training were more androgynous than their male fellow-students and than women in a more traditional field of study. Women in the non-traditional major were also more 'masculine' than women who chose a traditional major. A follow-up study (Yanico and Hardin, 1981), however, failed to find any relationship between sex-role identity and persistence in a chosen field of training. In another study (Jones and Lamke, 1985) the results indicated that there was a significantly greater number of 'feminine' (PAQ) women among those who has chosen Home Economics as their major, and significantly more 'masculine' (PAQ) women who had chosen Engineering - a non-traditional field - as their major.

Williams and McCullers (1983) reported that women who were highly successful in non-traditional careers had significantly higher masculinity score than women in traditional careers. Similar findings have been reported by two other studies. Research by

Stevens (1983) showed that ninety-six per cent of all management persons, both males and females, had high BSRI-masculinity scores. The other study (Ast, 1983) found that high school students (male and female) with high masculinity scores performed better in reading and mathematics and students with high femininity scores performed better in writing.

A somewhat mixed picture emerged from a study by Strange and Rea (1983). They investigated reasons behind choosing male-dominated and female-dominated majors by male and female students. While conscious consideration of sex-appropriateness of a major was reported to be the least important factor, the values of status and material gain were seen as reasons for choosing a male-dominated major and the values service to others and interpersonal skills for the choice of a female-dominated major by both males and females. In addition, there was a significant relationship between sex-role self-concept (i.e., masculine or feminine as measured by the BSRI) and females' choice of non-traditional vs. traditional majors. No such relationship was found among the male students.

Wolfe and Betz (1981) examined the applicability of Holland's theory about a compatibility between personality-type and occupational choice to women. They hypothesized that women who tended to choose jobs in the traditional sector do not seek such compatibility because they are primarily influenced by occupational stereotypes. Women who choose non-traditional jobs, on the other hand, are not restricted by such stereotypical beliefs. Therefore, for them, Holland's theory would be applicable. Their findings indicated that masculine-type (BSRI) rather than feminine,

androgynous, or undifferentiated women indeed were more likely to make non-traditional occupational choices which was theoretically compatible with their personality type. However, the authors did not explain why androgynous women did not do the same.

Two studies (Coutts, 1987; and Holleran and Lopez, 1984) failed to observe any relationship between masculine and feminine self-concept and women's achievement behaviour, or between sex-role orientation and traditionality of occupational choice. Among other factors, this may have been due to the very small size of the sample (fifty-eight women in the first, and forty-four men and sixty-nine women in the second study), or due to the nature of the experimental task (anagrams) in the second study.

In summary, the bulk of the evidence seems to suggest that there is a positive relationship between self-perceived 'masculine' or instrumental characteristics and non-traditional occupational goals and behaviour. This implies that if women aspire to successfully participate and function in 'non-traditional' roles, they must see themselves capable of possessing instrumental or stereotypically masculine traits without feeling threatened about losing their feminine identity. It also implies that women can accomplish this by having a wider concept of 'femininity' which encompasses characteristics commonly associated with male-dominated or non-traditional occupations.

Sex-role attitudes: Attitudes Toward Women

Studies focusing on the influence of sex-role attitudes (ideas about role-appropriate behaviour based on gender) on women's vocational choice similarly concluded that women having wider, more

egalitarian, more flexible sex-role attitudes are more likely to choose non-traditional occupations than women having more conservative, narrow and rigid sex-role attitudes (Nagely, 1971; Crawford, 1978). Specifically, the findings suggest that women who have a stereotypical view of feminine sex-role, see male-dominated occupations as incompatible with their self-concepts as feminine, and therefore, an unacceptable personal goal.

Two groups of college-educated mothers who were either in traditional (N=20) or non-traditional (pioneer in Nagely's terms) occupations were compared by Nagely (1971) on female role perception, attitudes toward career and career-related variables, and biographical information. The traditional occupations were nursery/elementary school teachers, home economics teachers, and such, while non-traditional occupations were high school teachers of chemistry/computer science, university faculty members in pharmacy, mathematics, etc. Attitudes toward career and career-related variables were assessed by using the semantic differential technique. Subjects rated the concept "career" on 70 bipolar seven-point scales where the masculine work-orientation factor consisted of items like permanent-temporary, appropriate-inappropriate, important-unimportant, masculine-feminine. Women in non-traditional occupations had more egalitarian sex-role attitudes, received more paternal encouragement for pursuing a career, and had a 'masculine' work-orientation (as defined by Nagely) in comparison with the women who were employed in traditional occupations. The non-traditional women, however, reported more disadvantages of being a woman for pursuing career in their areas of interest/expertise.

Stake (1979) reported a positive relationship between career commitment and egalitarian sex-role attitudes, and a negative relationship between career commitment and family involvement among female students (N=191) with high performance self-esteem. These findings seem to suggest that at least among some confident women, non-traditional sex-role attitudes were associated with a stronger commitment toward work-role as compared to the family-role.

In a comparison between female students majoring in traditional fields (N=63) with those majoring in non-traditional fields (N=43), Crawford (1978) found that the non-traditional group held more liberal sex-role attitudes (Attitude toward Women Scale or AWS) and engaged in significantly less sex-stereotyping than the traditional group. Thus, Crawford's study seemed to indicate that women with more egalitarian sex-role attitudes were less likely to view all men or all women to have similar traits, abilities or interests, and probably felt that individuals (either a male or a female) may choose any major they like, traditional or non-traditional.

Data reported by Harren et al. (1979) showed that although gender was the most important predictor variable in the choice of gender-dominant occupations, Femininity scores (BSRI) were important in predicting female-dominated choice of major, in both men and women. Women with liberal sex-role attitudes (AWS) tended to choose non-traditional or male-dominated careers more often than women with more conservative sex-role attitudes. In another study comparing students in traditional vs. non-traditional areas, Carney and Morgan (1981) found that female undergraduates who persisted for seven semesters in non-traditional fields, had a less restricted view of

married female sex-role than did those who were in traditional fields. This finding suggests that more egalitarian sex-role attitudes are positively related with women's participation in a non-traditional career.

Orcutt and Walsh (1979) explored the differences between women with traditional and non-traditional career aspirations with respect to several variables including values and sex-role attitudes. Results indicated that liberal sex-role attitudes, theoretical value (Allport, Vernon and Lindzey Scale) and infrequency (Holland's scale for measuring personal effectiveness, i.e., competency) successfully differentiated between the two groups. Women with non-traditional career-aspirations were more liberal in their sex-role attitudes, and scored higher on personal effectiveness and theoretical value. Other evidence regarding a positive relationship between liberal sex-role attitudes and career-salience in women was provided by Komarovsky (1982). One of the interesting findings in this study was that almost one-third of the sample described "the ideal woman" in terms of instrumental qualities, perhaps reflecting a recent reaction against the traditional female-stereotype.

In a study of sex-role appropriate behaviours for women and personal aspirations, Canter (1979), using unmarried female undergraduates, (N=200) examined correlations among:

- sex-role conception (defined by Canter as expectations about the appropriate role of women),
- expectations about the positive and negative consequences of role-inappropriate (educational and occupational) achievement,
- expectations for success

- perceived expectations of close friends, both male and female, concerning the appropriate role of women,
- perceived discrimination (social constraints on women's achievement),
- occupational and educational aspirations,
- indices of past achievement, and
- ability.

Significant positive correlations were found between sex-role conception and education/occupational aspirations. Aspirations were also positively related to expectations and perceived social constraints. Sex-role conception mediated the influences of perceived discrimination and peer expectations on women's aspirations.

Canter's study provides us with a useful conceptual framework which seeks to combine many of the potentially significant variables in her proposed model, by relating these variables to the level of career expectations and aspirations. However, there is evidence in the literature which indicates that in many cases, women who express non-traditional career aspirations when they enter a university, end up taking traditional jobs eventually (Kingdon and Sedlacek, 1982). In view of the fact that the majority of participants in Canter's study consisted of junior undergraduates, the model remains to be tested by using subjects already committed to traditional and non-traditional careers.

Lyson and Brown (1982) contended that sex-role ideology may be viewed as a multidimensional construct, and accordingly, derived two factors underlying sex-role attitudes by principal component analysis. They then investigated the relationship between these

factors, "equality" and "appropriate role" on one hand, and women's curriculum choice and career ambition on the other. They found very similar attitudes with respect to "equality" among the traditional (Home Economics major) and non-traditional (Agriculture major) students, but in both traditional and non-traditional groups, career ambitions were positively related to a more non-traditional attitude toward "appropriate role" of women in society. The failure to find a strong relationship between sex-role attitudes and curriculum choice led the authors to conclude that other variables such as significant others' expectations may play an important role in women's choice of curriculum.

Blackman (1986) noted a similar lack of significant differences between college women who were studying Mathematics and those who were not, in personality characteristics (BSRI) and attitudes (Attitude toward Women Scale or AWS and Sex Role Behaviour Scale or SRBS). This finding, again, was attributed to the influence of variables involving the social environment.

An interesting finding by Foss and Stanley (1986) was that although undergraduate women with liberal sex-role attitudes (High and Moderate AWS) did not differ from women with non-liberal sex-role attitudes (Low AWS) in the traditionality of their own career choices, there was a significant difference between the two groups in the traditionality of the careers chosen for their hypothetical daughters. In comparison with conservative women (N=25) with Low AWS scores, the liberal women (N=25) with High and with Moderate AWS scores made significantly more non-traditional career choices for their hypothetical daughters suggesting the influence of variables other than sex-role attitudes operating in the case of these women's

own occupational choices.

To summarize, it is possible to discern a tentative emerging pattern from the rapidly accumulating empirical data, which lends support to the view that sex-role attitudes do play a significant part in women's vocational behaviour. More specifically, it indicates that women with more egalitarian sex-role attitudes tend more to consider and choose non-traditional occupational roles as viable options, whereas in contrast, women with more traditional sex-role attitudes tend less to see male-dominated occupations within the range of their possible choices.

Perceived barriers and opportunities:

Going into areas where they make up a small and visible distinctive minority in traditional organizational structures, women face the consequences of stereotypic views held and established by a large male majority, and legitimized in times past by the majority of women and men alike. How the remnants of these barriers and opportunities are seen by women in non-traditional training areas, is important for a study such as this one.

In discussing some of the possible explanations for the wage gap between men and women, Ferber (1982) states that according to the neo-classical economic models, women earn less because they have less human capital to offer - in terms of level of vocational education, training and job-experience. But Ferber correctly points out that "it is not entirely women's free choice that leads them to settle for less, or less market-oriented education and training" (p.288). A similar observation was made by Kanter (1975) that "Despite a

prevalent image in social science of modern organizations as universalistic, sex-neutral tools, sex is a very important determinant of who gets what in and out of organizations" (p.34).

Research generally supports this view.

Terman and Oden (1959) did a follow-up study of a large sample of gifted children (IQ's equal to or greater than 135) - slightly less than half of whom were female. Consistent with expectations, at mid-life the majority of the males were found to have achieved professional, literary or artistic prominence. Most of the females, however, in spite of their superior intellectual capabilities, were primarily housewives or employed in traditionally female occupations. Bem and Bem (1970) described this as an example of "homogenization" of women regardless of their individual abilities and talents, caused by unresponsive or adverse social environment.

Sex-discrimination in selection and promotional practices sometimes stems from an implicit belief that males, as bread-winners, should be given the priority over females. Greenglass (1982) pointed out the fallacy of this and other related stereotypical beliefs about employment-related gender-role differences by stating the following facts: in many cases women's income, even when they are only secondary earners, was absolutely necessary for escaping poverty; unemployed men would not benefit if women left the labour force, since these jobs were usually inappropriate/unattractive to men; furthermore, women were often unambitious in their job-expectations, because, realistically, they have very limited opportunities to move forward; lastly, double standards widely prevail with respect to the evaluation of married male vs. married female employees so that loyalty toward one's family is considered positively in male

employees, but is interpreted as a lack of career-commitment in female employees.

The current labour-force statistics (pages 1-2) confirm Greenglass' arguments. Among female labour-force participants, the group having the highest participation rate (69.1% per cent) consists of women without husbands whose youngest child is between six and fifteen years old, emphasizing the financial necessity of employment for these working mothers. It should also be noted that, in 1985, 66.7% per cent of the female labour force were single women, and 36.4% per cent were widowed, divorced, or separated (Labour Canada, 1986-87).

Much available evidence indicates that indeed, even today, women have a great many institutional barriers with which to contend. Educational achievement is undoubtedly one of the pre-conditions of occupational achievement. Yet research has revealed subtle or sometimes non-subtle discriminatory practices which are detrimental to women's educational attainments (e.g., Bernard, 1976; Holahan, 1979; Goldstein, 1979). Gaskell (1982) noted that to a large extent educational segregation was shaped by the discouragement and the stereotypical message conveyed by teachers, parents and media, by perceived opportunities, and unavailability of 'non-traditional' courses to female high school students. She also maintained that occupational segregation naturally follows from educational segregation. Fewer women than men enroll in mathematics and science courses, eliminating a whole range of high-paying, high-status occupational options for women. Similarly, women are severely under-represented in the potentially higher-paying technical, trade and industrial training programs.

Data collected between 1976 and 1980 for a large on-going project in the U.S.A. (Monitoring the Future) showed that female high-school seniors' occupational expectations conformed to a large extent to the traditional sex-segregation, (Herzog, 1982). The author noted that these traditional aspirations might be a reflection of the perceived opportunities in the labour-market. Thomas (1980) described several factors as reported by females which deterred their entry and participation in non-traditional occupations. These barriers were: women's dislike of male-dominated work environment, disapproval of and active discouragement from the family and counselors, not having sufficient information about non-traditional careers, and/or unavailability of financial resources.

Fitzgerald and Crites (1980) have summarized several studies which reported stereotypic attitudes of career counselors toward women's occupational and family roles. Haring et al. (1983) reported that most counselors, especially males, expressed negative attitudes toward women's participation in non-traditional careers. Even in U.S. Federal apprentice programs, out of 32% per cent of trainees enrolled in 1978-79 only 3% per cent were women and 74% per cent were trained in personal service occupations (Dale, 1980). Eighty five% per cent of all female trainees in 1978-79 were in only eight occupational categories, all traditionally female-dominated, and 50% per cent received training in clerical and stenographic jobs, although only 14% per cent indicated these to be their usual occupation. These statistics remained unchanged over the period 1974-79. Furthermore, the reduction of training allowance and dependent care allowances in 1979 proved to be particularly inadequate and insensitive to the special needs of women, married or

unmarried - as evident from a significant decline in the number of women trainees following this cutback (Cohen, 1981).

There is reason to believe, however, that things may change for the better in the not-so-far future. Several scholars, (e.g., Pray and Thomas, 1982) have drawn attention to the important role counselors can play "in shaking up the status quo and to act as agents for social change" (p.3) by fulfilling their responsibility of guiding women to consider all possible options - traditional and non-traditional. The effectiveness of this suggestion is illustrated by a paper in which Herman et al. (1984) describe 'the evolution of a simple program that works'. A handful of dedicated faculty members and counselors sought to prevent the waste of the intellect and energy of hundreds of capable young women by starting a Women in Technology Program at Corning Community Centre. At the end of three years significant progress in attaining this objective was noted, and the program was admired by the Grants Administration Unit of State University of New York as a model for others.

In addition, a quasi-experimental study by Winston (1988) investigated the level of discrimination against potential employees when they made telephone enquiries about a gender-inappropriate job. She compared her own findings with that of a similar, earlier study (Levinson, 1982), and noted a 50% per cent reduction (from 35.2% per cent in Levinson's study to 18.4% per cent in Winston's study) in obvious discrimination, and a 50% per cent increase (31.2% per cent in Levinson's vs. 61.8% per cent in Winston's) in the incidences of no discrimination. The fact remains, however, that discrimination did occur in a large number of cases.

In summary, the majority of women, even in recent years, seemed

to have faced a considerable number of barriers for entering and pursuing non-traditional careers. These barriers may take the form of subtle or not-so-subtle discrimination, and lack of support from teachers, counselors, coworkers and employers, lack of adequate information, and/or financial support, isolation, and sometimes sexual harassment.

Peer Expectations:

Perceived support of peers in women's lives has been shown by Hawley (1972) to have a major influence on their pattern of career choice. Katz (1979) has emphasized the potency of the peer group and the media, during middle and late childhood and adolescence. Starting from middle childhood, peer group, especially the same sex group becomes a very important influence in setting the standard for sex-appropriate behaviour (Hartup, 1976).

Specifically, peer groups have been found to influence young women's traditional or non-traditional career aspirations in their role as reference group (Huston-Stein and Higgins-Trenk, 1978). Some researchers (Almquist & Angrist, 1971; Levitt, 1971; Tangri, 1975) found that career-oriented women mentioned their female friends as being important influences in their occupational values and decisions. Some career-oriented women also named their male peers as models (Angrist, 1972), unlike their more traditional female cohorts. For a married woman, the attitudes of her husband have a strong influence on her choice of career/family roles (Holmstrom, 1973; Poloma & Garland, 1971a, 1971b; Wells, 1966).

Another study of women interested in non-traditional careers explored the relationships between women's level of self-esteem, and

valuing of men as a group, valuing of women as a group, own encouraging behaviour toward men, and toward other women, and perceived level of emotional support received from significant people in their lives (Plas & Wallston, 1983). Self-esteem was more closely related to valuing of women and own encouragement of other women, than to the male-oriented variables. Contrary to expectations, perceived emotional support was not significantly related to self-esteem. The results - based on a small sample (N=34) - were interpreted as providing support for the importance of a female reference group for these women in non-traditional careers.

Lunneborg (1982) presented more direct evidence regarding the importance of encouragement from significant others for women studying or working in non-traditional areas, as well as for women Ph.D. candidates in social sciences. Data indicated that all potential influencers (parents, teachers, friends, siblings, and other adults) were seen by these women as supportive. Parents were reported as the most important sources of support and encouragement during high school and college years, and teachers and peers, in graduate school. There was no evidence of either males or females having a stronger influence on these women's career aspirations.

Several other studies (Houser and Garvey, 1983, 1985; Wilson et al., 1982) have provided evidence for the proposition that encouragement and support from peers play an important part in women's consideration of and participation in a non-traditional occupation. Wilson et al. (1982) interviewed 25 traditional (school teachers) and 25 non-traditional (professional or managerial) women and found that most of the traditional group mentioned their parents, while most of the non-traditional group considered their husbands as

the most important persons with respect to their career-pursuits. In fact, 15 of the non-traditional women made their career choice after their marriage, while most of the traditional women had chosen their careers in high school. Many of the non-traditional women were married to professionals which led the authors (Wilson et al.) to suggest a modeling effect.

Houser and Garvey (1983) observed that women enrolled in non-traditional training programs perceived significantly more support than did the students in the traditional program from all their significant others, with two notable exceptions - their female co-students and their school counselors. Specifically, they perceived receiving considerable support from the important men in their lives - father, brother, boyfriend/husband and male peers. In contrast, another study (Stringer and Duncan, 1985) found that unemployed women reported open discouragement from family and friends to be a major factor for not considering and pursuing non-traditional jobs.

In summary, the data indicate that especially during the school, college or university years, peers do act as important socializing agents. It seems that they can influence women's career aspirations by imparting conceptions regarding appropriate sex-role norms, and reinforcing the development of traditional or non-traditional sex-role identities.

Socio-Economic Status (A Co-Variate)

The experience of subjects in different spheres of life can of course reflect factors extraneous to the fact that few or many women presently work in an occupation.

Lipsett (1962), Blau and Duncan (1967) feel that socio-economic

status exerts a major influence on one's vocational decision by expanding or restricting one's range of perceived opportunities. Some confirmation of this suggestion comes from a review of studies dealing with personality and background characteristics of women in male-dominated occupations (Lemkau, 1979). It was observed that in general, women in male-dominated occupational fields are more likely to come from families in which both or at least one of the parents had had a high level of education and occupational status. For example, in most cases, fathers and/or mothers had at least college education, fathers held professional/managerial occupations, and mothers, quite often had an enjoyable [possibly middle or upper level] employment.

Carney and Morgan (1981) found that among the variables associated with one's family (mother's and father's education, family income) and community (size of hometown), only family income significantly distinguished between female students in traditional vs. non-traditional fields with traditional students coming from higher-income families. More recently, Ethington et al. (1987), noted that women from more affluent families tended to enter male-dominated nonscience occupations while entry into male-dominated science-occupations was associated with a strong academic background of the women themselves. Another recent study (N=68 girls) (Sandberg et al., 1987) reported a positive relationship between father's education and adolescent (13 to 18 years old) women's non-traditional career aspirations. Thus, these studies warrant inclusion of SES in any multidimensional study of women's vocational behaviour across traditional and non-traditional occupations.

SUMMARY, RATIONALE and HYPOTHESES

A Conceptual Integration - Theoretical Contribution

Although recent studies have focused on individual variables such as values, personality traits, sex-role attitudes, parental and peers' expectations, perceived discrimination and family background, very few studies have systematically examined the relationship of taking either traditional or non-traditional vocational training with the simultaneous combination of the above cognitions, values, traits and academic performance.

Few studies of women's occupational behaviour have included an explicit examination of work values in various life roles. In discussing his expectancy-valence approach, Feather (1984) proposed that values serve as incentives in inducing valences on objects and behaviours, and these valences in combination with expectancies (of perceived opportunities, reward, success or the lack of these) tend to guide the course of action to be followed. Maddux et al. (1986) examined the motivational quality of outcome expectancy when the outcome is considered important, or value-associated. They reported that the outcome-value had a main effect on behavioural intentions. In the present context, it might be also argued that sex-role attitudes may influence women's perceptions of outcome in such a way that certain outcomes seem more value-consistent than certain others. Such perceptions, then, may influence women's behavioural intentions as well as their performance in non-traditional training programs. Super's Self-concept theory (1980) is consistent with this approach, as Super maintains that individuals strive to attain their values through their major life-roles. Especially, Super considers vocational development to be essentially a process of implementing

one's 'self-concept' via value-fulfilment.

Feather (1984) examined the relationship between value priorities measured by the Rokeach Value Survey (Rokeach, 1973) and individuals' self-rated masculinity and femininity scores using the EPAQ Scale (Extended Personal Attributes Questionnaire Scale: Spence, Helmreich, & Holahan, 1979) and the BSRI (Bem, 1981). The values mature love, helpful, loving, obedient and polite had significant positive correlations, and the values imaginative, independent, logical and an exciting life had significant negative correlations with the F (Femininity) Scale of the EPAQ. Significant positive correlations between BSRI-masculinity scores and the values an exciting life, and freedom, were found. Also, significant negative correlations between the values a world of beauty and inner harmony, and BSRI-masculinity scores were reported. Thus, Feather's study reflects a tentative association between certain values and masculinity vs. femininity. Does this translate into a perceived association between traditional vs. non-traditional occupations by traditional vs. egalitarian women? The present study shall center on this issue.

Researchers have been aware of stereotypical associations between masculinity and instrumental traits such as independent, ambitious, confident, adventurous, competitive, and logical. Similar associations between femininity and the socio-expressive characteristics like gentle, easily expresses tender feelings, very aware of others' feelings, enjoys art and literature have also been documented. In the context of a thirty-nation study, Williams and Best (1982) observed that almost everywhere males were perceived as more adventurous, forceful and independent, and females, as more

emotional and submissive.

In another study, subjects were asked to rate several personality characteristics for their perceived desirability in men and women (Ruble, 1983). The traits aggressive, not excitable in minor crisis, dominant, good at sports and competitive were rated as significantly more desirable in men than in women. On the contrary, the traits kind, gentle, and expresses tender feelings were perceived as significantly more desirable in women than in men.

The findings reviewed above and on pages 6 to 8 seem to indicate that within stereotypical conceptions, traditionally, values such as Aesthetics, Altruism, Social Interaction and Social Relations have been associated with the stereotypic female sex-norm. Authority, Autonomy, Creativity, Physical Activity and Risk, on the other hand, have been reported as values which stereotypically, men seek more than women. These are, therefore, non-traditional, more sex-role incongruent values for women.

Finally, there is an abundance of literature on 'role-conflict' or 'role-overload' experienced by women who want to combine a successful family-role with a successful and challenging work-role (e.g., Hall, 1972; Pleck, 1977; Cooke & Rousseau, 1984; Maines and Hardesty, 1987). As Gutek (1988) has pointed out, women's role demands are often simultaneous. The peak periods of challenge in a career usually coincides with the period when the demands of a family-role (mother of young children and wife) are also the highest for a woman. Thus, women have to strive for success in a work-role (or even in a belated student-role) together with attending to their very demanding family responsibilities. In view of the above, concentrating on women's occupational role alone, in complete isolation

from their other life-roles, seems unwarranted and inadequate.

The present study seeks to extend our knowledge by:

- i) studying several of the major theoretically significant variables in one multidimensional investigation;
- ii) studying women who are actually engaged in training programs for traditional vs. non-traditional occupations;
- iii) including 'values' as a reflection of one's self-concept;
- iv) examining expectations of value-fulfilment through the major life-roles: student, worker, family-member, citizen and leisurite;
- v) assessing the indices of the participants' actual performance (GPA) in their chosen training programs; and
- vi) relating performance with their sex-role attitudes.
- vii) studying the barriers to achievement in non-traditional training programs as reported by women both in and outside such training programs.

Theoretical Rationale

It has already been noted (page 1) that sex-role attitudes are an individual's cognitive-affective responses to the expectations of significant others based on the individual's gender. If values are regarded as concepts of personal goals and preferences to be realized in various life-roles, then sex-role attitudes and instrumental / expressive traits can be thought of as a filtering mechanism (heuristic) that portrays certain options as appropriate, and some others, as not appropriate routes leading individuals to the fulfilment of their life-objectives.

For a woman with expressive traits and very traditional sex-role attitudes, seeking the attainment of her values would logically seem

more appropriate through traditional 'feminine' roles. This would be based on the theoretical premise of attitudes and behaviour also as having a "value-expressive" function. This theoretical position proposes that attitudes and (by extrapolation,) behaviour, provide one an opportunity to express one's internal frames of self-reference. Kristianson and Zanna (in press), Eiser (1987), Rosenberg (1960) have presented considerable empirical evidence of such a functional model. Theoretically, then, participation in and commitment to non-traditional jobs or job-training programs will be felt by traditional women as more incongruent with their self-concepts as women, as it would less express their value-systems.

From this theoretical perspective, a woman with more instrumental traits and egalitarian sex-role attitudes, would view such instrumental traits (necessary for participating in non-traditional occupations) as traits appropriate for men and women. She would regard participating in these occupations as appropriate and sex-role congruent activities as these allow expression of work and personal values she sees as important to her personality. By implication then, women having instrumental traits and more egalitarian sex-role attitudes would be more interested in seeking the fulfilment of their values in non-traditional areas.

Thus, the core idea derived from the sex-role congruence literature (Kalin & Hodgins, 1984) points to the potential influence of sex-role attitudes (in a wide sense including sex-role identity as well as attitudes toward the appropriate role of women in society), and instrumental/expressive traits in channeling women's efforts toward the fulfilment of their values in certain specific congruent directions of best fit. Theoretically, it is logical that women

establish a degree of cognitive/affective consistency between aspects of their sex-role identity and the extent to which they feel their job is traditional or non-traditional. It follows, therefore, that traditional women would direct their energies into traditionally female domains - homemaking or female-dominated occupations. Otherwise, they would experience considerable frustration resulting from value-incongruent goals, job behaviours, and societal and peer expectations.

On the other hand, those with more egalitarian characteristics and less typical backgrounds (working mothers in non-traditional areas) would be more sex-role congruent in jobs in the non-traditional areas. Depending on their sex-role attitudes and the mix of instrumental/expressive traits, they will seek the attainment of instrumental values (e.g., Autonomy) through their work role. These different value-attainment expectations will motivate egalitarian women to consider non-traditional occupations, as more fitting, appropriate, and enjoyable given their interests and makeup.

Like predictions can also be derived from the "Personal Investment theory" of Maehr (1984), according to which two sets of cognitions; 1) the individual's sense of self and 2) personal incentives determine the meaning of a task for an individual, and thereby influence her/his level of motivation. Sense of self is conceived as consisting of self-reliance, goal-directedness and self-esteem, while personal incentives, refer to the individual's values. These self-conceptions and incentives are, Maehr maintains, relatively enduring characteristics dependent on the individual's past experiences and socio-cultural context. Thus, all individuals are viewed as having motivational resources. However, the task-characteristics also

influence the individual's self-beliefs and incentives. Therefore, both personal (self-conceptions and values) and situational (type of task) aspects determine whether the individual would invest her/his time and energy in one type of work rather than in another.

For example, let us suppose that both A and B consider the value 'Achievement' to be important in their lives (personal incentives), but A has more traditional sex-role attitudes, while B has more egalitarian views. The traditional vs. egalitarian sex-role attitudes are likely to endow a "non-traditional" job (task) with different meanings (appropriate vs. inappropriate) for these two individuals. Theoretically, then, A will be less likely than B to seek 'Achievement' by working in a non-traditional domain.

Hypotheses

Subsequent to the preceding rationale, the following hypotheses are proposed:

1) Sex-role attitudes:

Sex-role attitudes will be significantly more traditional among those training for traditionally feminine occupations (Nursing and Nursing Assistance) than among those training for non-traditional feminine occupations (Computer Engineering, etc. as listed in Table 1).

2) Instrumental/Expressive Characteristics:

The number of women who describe themselves in terms of instrumental rather than expressive characteristics will be significantly greater among women training for non-traditional occupations than among women training for traditional occupations. The reverse will be true with respect to expressive characteristics.

3) Values and Value-attainment expectations:

a) Women in traditional training areas, as compared to women in non-traditional training areas will:

- i) score higher in the importance attached to traditionally feminine values such as Aesthetics, Altruism, Social Interaction and Social Relations, and
- ii) expect to attain these values through their work-role.

b) Women in non-traditional training areas, as compared to women in traditional training areas:

i) will rate the non-traditional values Authority, Autonomy, Creativity, Physical Activity, and Risk as more important, and

ii) expect to attain these values through their work role.

4) Women in non-traditional training areas, as compared to women in traditional training areas, will be more likely to perceive the sex-role attitudes of their peers as more flexible and liberal.

5) Women in non-traditional training areas, as compared to women in traditional areas, will expect less difficulties and more opportunities for pursuing a non-traditional occupational role.

6) Women scoring high on instrumental traits, as compared to women low on instrumental traits, will have higher value expectation scores for work-role and student-role (as a preparation for work-role), in comparison with other life-roles.

There is evidence that the characteristics considered necessary for attaining job success/personal wealth are stereotypically male, instrumental characteristics, and that these form a 'competency cluster' associated with personal effectiveness. Conversely, expressive traits are those behavioural characteristics which are associated with a communal self-less concern for others (Altruism), emotional responsivity to fellow-beings and a need for interpersonal rewards (Social Relations), are more likely realized and congruent

with a traditionally more feminine occupation or through the family, citizen or leisure-role.

7) Women with egalitarian attitudes toward women's roles will perform better in non-traditional training programs than women with traditional sex-role attitudes.

Empirical evidence reviewed in pages 11 to 17 suggests that women with traditional attitudes will find non-traditional roles more incongruent with their self-concept as feminine, and thus, unattractive personal vehicles for value-fulfilment. Women with non-traditional sex-role attitudes, on the other hand, having a much wider conception of sex-role, will not feel prevented by their sex-role attitudes from expending effort towards succeeding in such non-traditional roles. It seems logical to hypothesize, therefore, that women with non-traditional attitudes will perform better in non-traditional training programs than women with traditional attitudes in these same non-traditional programs.

CHAPTER II

METHOD

This chapter describes the method employed to test the preceding hypotheses. Specifically, the characteristics of the participants, the measuring instruments, and the procedures for collecting, scoring, and analyzing the data are reported in detail.

Participants

Two hundred and eighty six female undergraduate students of a local community college participated voluntarily in this study. Of these, one hundred and fifty one students were enrolled in programs which were "Non-traditional" for women (Trades and Technology), and the other one hundred and thirty five were from "Traditional" (Nursing, Nursing Assistantship) training programs.

Traditional vs. Non-Traditional: Independent Variable

Classification

For the purpose of the present research project 'Non-traditional programs' were those training programs where female enrolment was less than twenty-five per cent (25%) of the total enrolment in a program and 'Traditional programs' referred to those programs where female enrolment was ninety-five per cent (95%) of the total. Non-traditional programs included twenty-four different training programs such as Electronic Engineering Technology, Mechanical Engineering Technology, Computer Engineering Technology, Industrial Engineering Technology, Electro-Mechanical Engineering Technology, Computer Science, Survey and Map Technology, and, Ambulance and Emergency Care (Table 1). Traditional programs were Nursing and Nursing Assistantship.

TABLE 1

Distribution of Participants in Each Non-traditional Training Program

NAME OF THE PROGRAM	N	NAME OF THE PROGRAM	N
Ambulance and Emergency Care	5	Industrial Engineering	2
Architectural Technology	2	Mechanical Engineering Technology	2
Bio-chemical Technology	15	PATH into Technology	22
Bio-engineering Technology	1	Photographic Technician	2
Broadcasting	1	Precision Metal Fabrication	3
Chemical Engineering	5	Printing	4
Computer Engineering and Computer Programming	9	Survey and Map Technology	1
Computer Science	18	Technology	9
Electrical Manufacturing Assembler	1	Technology Writing	2
Electro-Mechanical Engineering Technology	5	Welding Fitter	1
Electronics Engineering Technology	18	Women's Introduction to Trade and Technology	22
Heating, Refrigeration and Air Conditioning	1	TOTAL:	151

The participants were predominantly white (97%), single (72%), English-speaking (94%) women with a mean age of 22 years for each group, and with a range of 17 to 41 years. The 6% per cent of the women who were not English-speaking were fluently bilingual, with English as their second language. They had no difficulties in filling out the questionnaire.

Impact of SES on Traditional vs. Non-traditional Participants

Table 2 shows an approximately equal (X^2 not significant) distribution of women in the Traditional and Non-traditional groups whose fathers were either in Clerical and Sales-related occupations, semi-skilled (no special training) and skilled occupations. There were more women (67 versus 46, $X^2 = 3.9$, $p < .05$), whose fathers were in professional or managerial (university education) categories in the Traditional group. Grouping the professional/managerial and sales/clerical occupational categories into High-SES Level, and the skilled and semi-skilled occupational categories into the Low-SES level, two other chi-square analyses were done. One chi-square analysis tested if the Traditional (Nursing) and the Non-traditional (Trades and Technology) Groups differed from each other in the frequency of women coming from the High-SES level, and the other to examine the differential frequency, if any, of women from the Low-SES level in these two major training Groups. The results reported in Table 3 revealed that in neither case was the X^2 significant ($X^2 = 3.7$ and $X^2 = 3.1$ for High-SES and Low-SES levels respectively).

Family incomes were higher for women-students in the traditional training program. There were almost twice as many ($X^2 = 8.1$, $p < .01$) women in the Non-traditional group compared to women in the

TABLE 2
Demographic Variables of Participants

	GROUP 1 (TRADITIONAL)	GROUP 2 (NON-TRADITIONAL)	
<u>Classification category</u>	<u>Number of women in each group</u>		<u>X²</u>
<u>A. Marital Status</u>			
Single (never married)	107	100	0.7 ns
Presently married	21	32	2.3 ns
No longer married	6	19	6.6 **
<u>B. SES of the Participants as measured by their Fathers' Occupational Status</u>			
Professional/Managerial	67	46	3.9 *
Clerical & Sales	7	7	0 ns
Skilled Requiring Community College Training	35	52	3.3 ns
Semi-skilled Requiring no special training	9	10	0 ns
Not Applicable	10	27	
<u>C. Family Income</u>			
Less than 20,000	26	51	8.1 **
20,000 to 39,999	41	52	1.3 ns
40,000 to 59,999	40	24	4.0 *
60,000 to 79,999	19	14	0.8 ns
80,000 and above	4	4	0 ns

* p=.05

** p=.01

df=1 for each X² analysis

Table 3

Chi-square Analyses of the frequency of women from
a) High SES families in the Traditional (Nursing)
vs. Non-traditional (Trades & Technology) Groups
b) Low SES families in the Traditional (Nursing)
vs. Non-traditional (Trades and Technology) Groups

	Traditional	Non-traditional	DF	X ²	Significance
	Group 1	Group 2			

	<u>Number of women</u>				
a) High SES	74	53	1	3.5	0.10 ns
b) Low SES	44	62	1	3.1	0.10 ns

High SES = the first two SES categories of Table 2
 (professional/managerial, sales and clerical)

Low SES = the third and the fourth SES categories of Table 2 (skilled and semi-skilled)

Traditional group, whose family income was less than \$20,000, and almost half as many in the middle family-income category (\$40,000 to \$59,999 $\chi^2 = 4.0, p < .05$). There were no differences across groups in the other three family income categories. Overall, then, significantly more women in the Non-traditional group rather than in the Traditional group came from lower income families (Table 2).

Data Collection Procedure

Traditional Students

Seventy-one students from the Nursing program and sixty-four students from the Nursing Assistantship program were scheduled by their instructors to meet in large groups of about thirty-forty during class hours to fill out the questionnaires.

Non-Traditional Students

a) At Registration, in January, 1985, almost all female students in the main centre for the Trades and Technology programs were asked individually into which programs they were going to enroll. If they were registering for any of the Non-Traditional programs, they were told briefly about the purpose of the study, and were invited to participate.

b) Two courses: Women's Introduction to Trades & Technology (WITT), and PATH into Technology (PATH), had been offered for several years specifically to attract women into Non-traditional occupations. After completing these training programs, female trainees, who were sponsored by Employment and Immigration Canada, may then either enter the labour force directly, or register into a regular Trades and Technology program at a community college.

When the instructor of these courses was approached for help in recruiting subjects, she arranged for some class-time for explanations of the study and distribution of questionnaires. The students who volunteered to participate took the questionnaires home to fill out, and most of them brought the completed questionnaires back later. These classes usually consisted of ten-fifteen students, and the programs lasted for only one semester. Several successive groups of students were approached over the course of two years (1985-1986). Forty-four completed questionnaires were collected out of about sixty that were handed out.

c) Lastly, in the earlier part of 1987 individual students were contacted by phone from the list of Trades and Technology students provided by the College. Each of them was told about the purpose of the study briefly, and also about the nature of the participation that was being requested. Appointments were then made to meet these students at the college according to their convenience. These efforts finally resulted in the collection of a total of 151 completed questionnaires from the Non-traditional students.

Measuring Instruments and Scoring Procedures

Each Questionnaire package consisted of the following measures:

1. Attitudes toward Women Scale (AWS: 25-item version, Spence and Helmreich, 1972) (Appendix A) Page 208
2. Personal Attributes Questionnaire: (Spence and Helmreich, 1978) (Appendix B) Page 212
3. Life Roles Inventory

a) The Values Scale (Super & Nevill, 1984) (Appendix C)

b) The Role Values Grid (Super & Nevill, 1984) (Appendix D)

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c) Personal Information (Super & Nevill, 1984) (Appendix E)

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4. Perceived Peer Expectations Scale (Based on Canter, 1979)

(Appendix F) Page 225

5. Perceived Barriers and Opportunities Scale (Based on Canter, 1979) (Appendix G) Page 231

A short review of each of the measures used is given below.

1. Attitudes toward Women Scale (AWS)

The short, twenty-five item version of the Attitudes toward Women Scale (Spence & Helmreich, 1972) was employed. This scale contains statements describing the rights, roles, and privileges women do/should have in society. The respondents were asked to indicate their agreement with each statement on a four-point scale ranging from "agree strongly" (=1) to "disagree strongly" (=4), instead of the original scale ranging from 0 to 3. In this way scores of 0 were eliminated.

In twelve of the items a high score indicated a non-egalitarian, more traditional view of women's roles. The total score for these twelve items could range from 12 to 48, and was defined as AWSTR. In the other thirteen items, a high score indicated an egalitarian, non-traditional attitude toward women's roles. The total score for these thirteen items could range from 13 to 52, and was referred to as AWSNTR. The total AWS score was derived by subtracting the AWSTR score from the AWSNTR score. Therefore, a high AWS score indicated a more egalitarian attitude toward rights and roles of men and women.

Table 4, page 45 shows the mean AWS score of the normative sample used by Spence and Helmreich (1978) was 29.6 with a standard deviation of 9.6. In the present study, the mean AWS score for the total sample (Traditional and Non-traditional students) was 27.3 with a standard deviation (S.D.) of 9 (Table 4). For comparison purposes, conversion of the scores (1 to 4) used in the present study to '0 to 3' as used by Spence and Helmreich, resulted in a mean of 25.95 with a S.D. of 8.7 for the Total sample (Traditional as well as Non-traditional Groups combined), a mean of 23.66 with a S.D. of 8.9 for the Traditional group, and a mean of 27.74 with a S.D. of 8.2 for the Non-traditional group (Table 4). The mean value (25.95) of the total sample was significantly lower - more traditional - than the corresponding value (29.6) reported by Spence and Helmreich ten years ago, suggesting less egalitarian attitudes in the present sample. These differences in comparison with the normative sample is not surprising in view of probable greater breadth in the normative group from the United States. People in the present project came only from Nursing, and Trades and Technology, with no representation from the Social sciences, Law, Political Science, Arts, and so on.

The reliabilities of the shorter version of the AWS were expected to be high, since the 25 items selected for the shorter version maximally discriminated among the quartiles of the normative group used for the longer version (Spence & Helmreich, 1973). Very satisfactory test-retest reliabilities at a two and a half-month interval ($r=.83$ and alpha coefficients of $.85$) were established on the basis of research at the U.S. West Point Military Academy (Yoder et al., 1979). In another study (Prociuk, 1980) of male students at

Table 4

Means and Standard Deviations of Dependent Variables in the Present study
as compared to Normative Data

	Normative Sample (Female univer- sity students)		Total Sample (Present Study)		Traditional Group 1.		Non-traditional Group 2.	
	<u>X̄</u>	<u>S.D.</u>	<u>X̄</u>	<u>S.D.</u>	<u>X̄</u>	<u>S.D.</u>	<u>X̄</u>	<u>S.D.</u>
AWS**	29.59 (n=715)	9.6	25.95 (n=257)	8.7	23.66 (n=105)	8.9	27.74 (n=134)	8.2
INSM*	19.54	4.3	18.94	3.8	18.30	3.6	19.49	4.0
EXPF**	24.37 (n=715)	3.7	23.02 (n=236)	4.2	23.87 (n= 99)	4.0	22.30 (n=137)	4.3
<u>Values</u>								
AES	14.05	3.5	14.53	3.1	14.72	2.9	14.37	3.2
ALT**	13.91	3.4	16.39	3.3	18.37	2.2	14.67	3.2
SOCI	14.15	2.9	14.19	2.9	15.38	2.6	13.16	2.8
SORE**	15.86	2.9	16.91	2.5	17.38	2.5	16.51	2.5
AUTH**	13.46	3.1	14.41	2.6	14.59	2.6	14.25	3.1
AUTO*	15.29	3.0	15.89	2.6	15.57	2.5	16.17	2.6
CPE	14.15	3.4	14.25	3.2	13.40	2.9	14.99	3.3
PHY**	12.40	3.5	14.98	3.1	15.30	2.9	14.70	3.3
RISH**	9.17 (n=244)	3.3	11.56 (n=269)	3.5	11.33 (n=125)	3.1	11.76 (n=144)	3.7
TOTTRAD**	86.03 (n=200)	13.41	55.43 (n=270)	11.4	54.87 (n=123)	11.09	50.38 (n=147)	11.38
PEPDIF	-----		3.23 (n=217)		3.05 (n=126)	.88	3.33 (n=144)	1.20

1. AWS (Spence & Helmreich, 1978)
2. PAD (INSM, EXPF - Spence & Helmreich, 1978)
3. Values (AES, ALT, SOCI, SORE, AUTO, CRE, PHY, PISH - Super & Nevill, 1984)
4. TOTTRAD (Perceived Peer Expectations - Canter, 1979)
5. PERDIF (Perceived Difficulties - Canter, 1979)

* difference between normative sample and the total sample in the present study significant at $p < .05$ level

** difference between normative sample and the total sample in the present study significant at $p < .001$ level

(Table 4 continued)

Table 4 continued

Means and Standard Deviations of
Dependent Variables in the Present Study
as compared to Normative Data

	Normative Sample (Univer- sity students)		Total Sample (Present Study)		Traditional Group 1.		Non-traditional Group 2.	
	<u>X̄</u>	<u>S.D.</u>	<u>X̄</u>	<u>S.D.</u>	<u>X̄</u>	<u>S.D.</u>	<u>X̄</u>	<u>S.D.</u>
B37** (VAW-ALT)	2.88	1.10	3.38	.73	3.59	.58	3.18	.79
B42* (VAW-AUTO)	2.91	1.20	3.24	.76	3.11	.73	3.36	.77
B72 (VAW-RISK)	---	---	2.84	1.07	2.62	1.09	3.04	1.02
B77 (VAW-SOCI)	---	---	3.30	.73	3.50	.64	3.11	.76
	(n=168)		(n=281)		(n=133)		(n=148)	
VAS	3.01	.63	3.09	.58	3.13	.52	3.06	.62
VAW*	3.29	.54	3.39	.38	3.41	.35	3.37	.40
VAF	3.32	.49	3.30	.56	3.37	.48	3.24	.61
VAC*	2.74	.77	2.48	.79	2.58	.67	2.39	.87
VAL*	3.19	.58	2.78	.66	2.80	.64	2.76	.68
	(n=137)		(n=250)		(n=121-129)		(n=145-148)	

6. B37 to B77 (Value-attainment expectations through Work-role only, for values ALT, AUTO, RISK and SOCI respectively)
 7. VAS to VAL (Value-attainment expectations through Student-role, Work-role, Family-role, Citizen-role and Leisure-role respectively)
 6. and 7. (The Role Values Grid, Super & Nevill, 1984)

* difference between normative sample and the total sample in the present study significant at $p < .05$ level

** difference between normative sample and the total sample in the present study significant at $p < .001$ level

three Canadian Military colleges, alpha coefficients ranging from .84 and .89 and test-retest reliabilities of .89 at three weeks' interval were reported. In the present study, the alpha coefficient for the AWS was .81, reflecting acceptable internal consistency.

The construct validity of the 25-item AWS was demonstrated by Spence, Helmreich and Stapp (1975) using significant correlations between the AWS scores and stereotypical male/female trait ratings in the expected direction. Those who scored low on the AWS (more traditional) also rated typical males and typical females more differently than individuals who scored high on the AWS (more egalitarian). This would reflect discriminant validity. Kilpatrick and Smith (1974) evaluated the validity of the AWS (25-item) and found that it could significantly differentiate between the female members of the National Organization of Women vs. non-member female college students, and also between the members of the N.O.W. vs. a sample of mothers of college students.

The correlations between the longer 55-item version of the AWS and the shorter version are reported to range from .95 to .97 (Spence & Helmreich, 1973). The construct validity of the longer 55-item AWS is based on the obtained differences in the expected direction between men and women between Introductory Psychology students and Graduate Psychology students, and also between college-students and their parents (Spence & Helmreich, 1978). The authors argued that women should show more egalitarian sex-role attitudes than men, Graduate Psychology students should be more egalitarian than Introductory Psychology students, and college-students should be more egalitarian than their parents. Their findings supported this contention (Spence & Helmreich, 1972; 1978), suggesting that the AWS

is a valid measure of attitudes toward women's roles in society. Predicted differences on the AWS scores between students at the University of Washington (more egalitarian) and students at the University of Texas (less egalitarian) were also reported by Lunneborg (1974). Further confirmation of the validity of the AWS was offered by Valentine et al. (1975) who found that women had significantly higher AWS scores than men, and graduate students score higher than the undergraduates.

The AWS was used to test Hypothesis 1 operationally defined as follows:

The mean AWS score of trainees in the Non-traditional programs (Group 2) will be significantly higher (more egalitarian) than the mean AWS score of the trainees in the Traditional programs (Group 1).

The AWS was also used to examine Hypothesis 7. In operational terms, Hypothesis 7 can be defined as follows:

Among trainees in the Non-traditional programs (Group 2), Hi AWS women (those scoring above 27.3, the mean AWS score for the total sample, i.e., the women with more egalitarian sex-role attitudes) will have a significantly higher mean score on MARKS (Grade Point Average) than Lo AWS women (those who scored equal to or less than 27.3, i.e., women with more traditional sex-role attitudes).

The variable MARKS was derived by calculating the Grade Point Average, based on the women's performance on courses taken during the last one to three years. The participants were requested to sign an authorization form giving access to their transcripts from the College. The majority (89%) of participants complied with the request.

2. Personal Attributes Questionnaire (PAQ)

The instrument used to assess Instrumentality and Expressiveness was the short form of the Personal Attributes Questionnaire. The Personal Attributes Questionnaire, (Spence, Helmreich & Stapp, 1975) is a self-report instrument consisting of a number of trait descriptions, each set up on a bipolar scale. Each item describes a characteristic stereotypically believed to differentiate the sexes. The short version is composed of the twenty-four bipolar items describing personal characteristics, on each of which respondents were asked to rate themselves using a five-point scale, 1 to 5. The questionnaire is divided into three eight-item separate scales, labeled Masculinity (M), Femininity (F), and Masculinity-Femininity (M-F). The Masculinity scale contains items that are socially desirable for both sexes but, the items are such that males are believed to possess them in greater abundance than females (e.g. independence). Conversely, the Femininity scale contains items describing characteristics considered to be socially desirable in both sexes but they are such that females are believed to possess them to a greater degree than males (e.g. gentleness). Items on the third, Masculinity-Femininity scale, consists of characteristics whose social desirability appears to vary in the two sexes (e.g. aggressiveness is judged to be desirable in males and nonaggressiveness desirable in females).

As suggested by the authors on the basis of their research, the content of the M scale refers largely to instrumental, agentic characteristics, while items on the F scale refer largely to expressive, communal attributes. Each item was scored from 1 to 5, a

high score on items assigned to the masculine, M scale indicating an extreme agentic response, while a high score on Feminine F scale items, indicated an expressive, feminine response.

Again, the present study used the scores of '1 to 5' instead of '0 to 4' and therefore, the range of possible scores for the M and F scale (defined as INSM and EXPF respectively in this study) ranged from 8 to 40. Table 4, page 45 shows that for the normative sample, Spence and Helmreich reported the mean of the M scale to be 19.54 with a S.D. of 4.32, and the mean of the F scale to be 24.37 with a S.D. of 3.68. The corresponding values for the present sample were 26.94 ($\bar{X}$ of INSM) with a S.D. of 3.8, and 31.1 ($\bar{X}$ of EXPF) with a S.D. of 4.2. Conversion of these scores by using the scale '0 to 4' resulted in a mean INSM score = 18.94, significantly lower (less instrumental) than the mean M score of the normative sample, and a mean EXPF score of 23.02, significantly lower (less expressive) than the mean F score of the normative sample (Table 4). These differences could be due to the fact that the normative sample of Spence and Helmreich was a much larger, more heterogeneous, American sample of ten years ago.

The Cronbach alphas reported by Spence & Helmreich (1978) for the 24-item version of the PAQ are: .85 for the M scale, .82 for the F scale, and .78 for the M-F scale. The internal consistency of the 24-item PAQ has also been demonstrated by Helmreich, Spence and Wilhelm (1981) using very large samples of a) 674 females and 509 male high school students, b) 1,585 female and 1,251 male university students and c) 1,028 mothers and 926 fathers of college and elementary school students. The alpha coefficients ranged from .67 to .78 for the M scale among male subjects, and from .71 to .77 among

female subjects, and the range of alpha coefficients for the F scale was from .72 to .80 among male subjects, and from .73 to .79 among female subjects . The alpha coefficients for the M-F scale was from .53 to .65. In the present study, the alpha coefficients for INSM (M Scale) and EXPF (F scale) were .55 and .74 respectively. The low alpha for the M Scale suggests item content was more polyfactorial in the eyes of this sample of women in Traditional and Non-traditional training programs. The relatively low internal consistency for the M scale in the present sample could be particularly problematic in examining hypothesis 6, which necessitated classifying subjects into High instrumental vs. Low instrumental subgroups according to their M scale scores.

This study by Helmreich et al. also established the construct validity of the 24-item PAQ. In all of the six factor analyses performed, two large factors emerged, reproducing the instrumental and expressive clusters underlying the M and F scales, and providing strong support for the dualistic concept. The authors reported that in all of their U.S. samples, with the exception of homosexuals, the means of every item of the M and F scales were significantly different for men and women. It has also been demonstrated that the PAQ is not seriously threatened by response distortions due to social desirability and intelligence (Spence, Helmreich and Stapp, 1975).

The short form of the PAQ has a correlation of .93 with the 55-item longer form, which was used by Ruble (1983) to investigate sex-stereotypes among college students. In 53 of these items the ratings of a typical man differed significantly from the ratings of a typical woman, thus indicating the validity of the PAQ as a measure of

stereotypical masculine and feminine attributes. Feather (1984) provided additional evidence for the construct validity of the EPAQ (an extended form of the PAQ including socially undesirable instrumental and expressive traits) by showing that, as expected, the males scored significantly higher on the M scale and the females scored significantly higher on the F scale.

The PAQ was used to measure INSM (Instrumental Masculine Traits) and EXPF (Expressive Feminine Traits), to examine hypotheses 2a) and 2b) operationally defined as follows:

2a) The number of women whose mean INSM score is higher than 26.94 (mean INSM for the total sample) and whose mean EXPF is lower than 31.02 (mean EXPF for the total sample) will be significantly greater in the Non-traditional Group 2 than in the Traditional Group 1.

2b) The number of women whose mean INSM score is lower than 26.94 (mean INSM for the total sample) and whose mean EXPF score is higher than 31.02 (mean EXPF for the total sample) will be significantly greater in the Traditional Group 1 than in the Non-traditional Group 2.

3. The Values Scale

The Values Scale of Donald Super (1984) is a 100-item inventory consisting of 20 separate scales each of which measures a value or satisfaction that most people seek in major life-roles, such as work, study, and home making. Each scale consists of five items, at least two of which relate to work values and at least two of which relate to values in general. Only, in the scale on 'Working Conditions' do all items relate to work values.

The present study was primarily interested in the following values:

Aesthetics(AES): to make life more beautiful

Authority(AUTH): to tell others what to do

Autonomy(AUTO): to act on one's own

Creativity(CRE): to be creative

Physical Activity(PHY): to get a lot of exercise

Risk(RISK): to be able to take risks

Social Interaction(SOCI): to do things with other people

Social Relations(SORE): to be with friends

The Values Scale begins with a partial sentence, "It is now or will in the future be important for me to ... " followed by a series of completion statements like "use all my skills and knowledge". The statements are rated on a four point scale with 1= little or no importance; 2= of some importance; 3= important; and 4= very important.

For example, one of the items for the value Autonomy is "make my own decisions at work". If an individual considered this to be very important to her, she would mark '4' in the space corresponding to that item on the answer sheet as follows:

Little/No importance	Some importance	Important	Very important
1	2	3	4

If, another individual considered this as of little or no importance to her, she will mark '1' instead, as follows:

Little/No importance	Some importance	Important	Very important
1	2	3	4

For each respondent, the score on any specific value is the sum of the scores on the five items of each specific scale.

Reliability of the Values Scale

Table 5, page 55 shows the alpha coefficients and test-retest reliability data based on the normative sample of college students (Super & Nevill, 1984) for the nine values of interest which ranged from .70 to .87. In the present study, the alpha coefficients for these nine values were in the range of .76 to .89. A pilot project carried out in 1983 as a part of the Canadian Work Importance Study also reported alpha coefficients ranging from .76 to .86 for these nine values. The Immigration Canada sample consisted of highly educated adults, 75% of whom were females (Employment and Immigration Canada, 1983).

The Values Scale was administered to different populations in many other countries who participated in an International Work Importance Study in the early 1980's. The test-retest reliabilities for the U.S. female undergraduates ranged from .67 to .86. The alpha coefficients reported by the Spanish research team ranged from .74 to .87, (n=484, male and female adults with a mean age of 22 years), and in Portugal (n=136, adults), the range of alpha coefficients was from .75 to .86 (Employment and Immigration Canada, 1983).

Validity of the Values Scale

In discussing the content validity of the Scale, Super and Nevill (1984) stated that at least three specialists from different participating countries (in the International Work Importance Study) wrote, and all project directors reviewed the items of each value according to agreed upon definitions. This was followed by a rigorous method of item purification by employing standard item-scale correlational and factor-analytic methods.

Table 5

Alpha coefficients and test-retest reliability
data for the Values and the Value-attainment Expectations
through the life-roles based on a sample of
college students (Super & Nevill, 1984)
and those of the Present Study

		Present study	Super & Nevill	
Values		Alpha Coefficients	Test-retest reliabilities	
		N=268	N=433	N=83
1.	Aesthetics (AES)	.80	.84	.76
2.	Altruism (ALT)	.89	.87	.71
3.	Authority (AUTH)	.81	.84	.70
4.	Autonomy (AUTO)	.78	.79	.71
5.	Creativity (CRE)	.84	.85	.74
6.	Physical Exercise (PHY)	.82	.79	.82
7.	Risk (RISK)	.83	.87	.77
8.	Social Interaction (SOXI)	.76	.74	.76
9.	Social Relations (SORE)	.77	.78	.75
Value-Attainment Expectations through Life-roles		N=280	N=295	N=85
10.	Student-role (VAS)	.84	.84	.65
11.	Work-role (VAW)	.73	.85	.56
12.	Family-role (VAF)	.87	.83	.58
13.	Citizen-role (VAC)	.90	.90	.67
14.	Leisure-role (VAL)	.89	.84	.37

The construct validity of the Values Scale was derived from the consistency of the factor structure of the values across the three normative samples, high school students, university students, as well as adults (Super & Nevill, 1984). Furthermore, sex-differences in the expected direction were found among high-school students. Females valued Altruism more than males, and males valued Risk and Physical Prowess more than females did.

The Australian team (International Work Importance Study) used Super's Values Scale and found evidence of some sex-differences in values. Males scored higher than females on the importance of the values Risk, Physical Activity, and Authority, and females scored higher than males on the importance of values Altruism, Aesthetics and Social Relations (Employment and Immigration Canada, 1982). On the basis of the congruence of value priorities found using Super's Values Scale with those found using measures of Rokeach (Feather, 1984; Ruble, 1983) there would appear some evidence of the construct validity of the Super measure.

Table 4, page 45 presents the means and S.D.'s of the normative sample, and of the total sample of the present study. The means and S.D.'s of the Traditional and the Non-traditional groups have also been reported. The mean of the present sample was significantly higher than the mean of the normative sample on each of the values except Aesthetics, Social Interaction and Creativity, possibly due to the sample composition.

The Values Scale was employed to assess the importance of nine Values: Aesthetics (AES), Altruism (ALT), Authority (AUTH), Autonomy (AUTO), Creativity (CRE), Physical Activity (PHY), Risk (RISK), Social Interaction (SOCI), and Social Relations (SORE), to

test hypotheses 3a1 and 3b1. In operational terms, these hypotheses are:

3a1) The mean score of women in the Traditional Group 1 will be significantly higher than the mean score of the Non-traditional Group 2 on each of the values AES, ALT, SOCI, and SORE.

3b1) The mean score of women in the Non-traditional Group 2 will be significantly higher than the mean score of women in the Traditional Group 1 on each of the values AUTH, AUTO, CRE, PHY, and RISK.

4. The Role Values Grid

The Role Values Grid (Super, 1984) consists of fourteen values, of which the present study has used Altruism, Autonomy, Risk, and Social Interaction, for reasons of time constraints. The respondent was required to indicate their expectations of attaining each of these four values through each of the five major roles of: student, worker, family-member, citizen and leisurite. Specifically, it asked the participant to indicate what opportunity she sees now or in the future to (for example) "use all her skills and knowledge" in studying, working, community service, home-and-family, and leisure activities, - by using a four point scale, as shown below, with an additional response option of Not Applicable (N/A).

What opportunity do you see now or in the future to use all your skills and knowledge in:

	Little/None	Some	Quite a lot	A great deal	N/A
studying	1	2	3	4	5
working	1	2	3	4	5
community service	1	2	3	4	5

	Little/None	Some	Quite a lot	A great deal	N/A
home and family	1	2	3	4	5
leisure activities	1	2	3	4	5

Hypotheses 3a1i and 3b1i, however, concern only the value-attainment expectations through one's work-role (VAW). The values of interest being Altruism (ALT), Autonomy (AUTO), Risk (RISK), and Social Interaction (SOCI). The work role is here defined as remunerative work, for pay or for profit. Accordingly, only the following four items of the Role Values Grid which assess expectations for attaining these four values through one's work-role have been used for testing hypotheses 3a1i and 3b1i:

B37. (VAW-ALT) What opportunity do you see now or in the future to help others through [your] working?

B42. (VAW-AUTO) What opportunity do you see now or in the future to act on [your] own in working?

B72. (VAW-RISK) What opportunity do you see now or in the future to gamble where there is something to gain by working?

B77. (VAW-SOCI) What opportunity do you see now or in the future to do things with other people in working?

Hypotheses 3a1i and 3b1i were operationally defined as the following:

3a1i) The mean score of women in the Traditional Group 1 will be significantly higher than the mean score of women in the Non-traditional Group 2, for each of the two variables, B37 (VAW-ALT, or, expectations for attaining the value Altruism via work-role) and B77 (VAW-SOCI, or expectations for attaining the value Social Interaction via work-role).

3b1i) The mean score of women in the Non-traditional Group

2 will be significantly higher than the mean score of women in the Traditional Group 1, for each of the two variables, B42 (VAW-AUTO, or, expectations for attaining the value Autonomy via work-role) and B72 (VAW-RISK, or, expectations for attaining the value Risk via work-role).

The Role Values Grid was also used to test Hypothesis 6 concerning priority given to certain values in certain life roles by High instrumental vs. Low instrumental women. The Role Values Grid seeks to assess the expectations of attaining each value through each of the five major roles: student, worker, family-member, citizen and leisurite.

As mentioned, the work role is defined as remunerative work, for pay or for profit. The home-and-family role includes activities which range from making one's bed or other household activities to caring for a child or other dependents. The leisure role means the systematic pursuit of hobbies or socializing with friends, listening to music, and even idling. The citizen role includes volunteer work with civic organizations or with service projects.

For each Value, there was only one item such as for Altruism, "help others through my" , followed by five role-related words:

studying	1	2	3	4	N/A
working	1	2	3	4	N/A
community service	1	2	3	4	N/A
home and family	1	2	3	4	N/A
leisure activities	1	2	3	4	N/A

The respondent was asked to indicate by marking the appropriate number (1 = little/none, 2 = some, 3 = quite a lot, 4 = a great deal), what opportunity she sees now or in the future to, (for

example), "help others through" those five roles.

The mean score of expectations for value-attainment through each of these roles was obtained by summing across all values for each specific role-item, and then dividing the sum by the number of values. The focus here was not on the values, but on the specifically targetted roles. Thus, the mean score of expectations for value-attainment through student-role (VAS) was obtained by summing the student-role items across all values of the Role Values Grid, and then dividing the total by the number of values. Mean scores of expectations for value-attainment through other roles - working (VAW), family (VAF), citizen (VAC) and leisurite (VAL) were calculated by following a similar procedure.

The variables VAS, VAW, VAF, VAC, and VAL were assessed by using the Role Values Grid. The scores of these variables were then converted into standard scores and the resulting variables were called ZVAS, ZVAW, ZVAF, ZVAC and ZVAL respectively. These variables were involved in testing hypothesis 6, described in operational terms as follows:

For H1 INSM women, (those who scored above 26.94, mean INSM for the total sample = 236) the mean score of the variable ZD1 [Value-Attainment expectations through student and work-roles, (ZD1=mean of ZVAS and ZVAW)] will be significantly higher than the mean score of the variable ZD2 [Value-Attainment expectations through family, citizen, and leisure roles (ZD2=mean of ZVAF, ZVAC and ZVAL)].

For Lo INSM women (those who scored equal to or less than 26.94, the mean INSM score for the total sample), there will be no significant difference between ZD1 and ZD2.

In other words, hypothesis 6 predicts that: as examined by T-tests, for H1 INSM women ZD1>ZD2, but for Lo INSM women, ZD1 - ZD2 will not be significant where ZD1 = (ZVAS + ZVAW)/2 and ZD2 = (ZVAF + ZVAC + ZVAL)/3.

In less complicated terms, Hypothesis 6 says that women scoring high on instrumental traits, as compared to women low on instrumental traits, will have higher value expectation scores for work-role and student-role (as a preparation for work-role), in comparison with other life-roles.

Reliability and Validity of the Role Values Grid

Super and Nevill (1984) report evidence that the Role Values Grid included only those values which could discriminate among occupational groups. The individual item (for example, "to help others") representing each value (for example, Altruism) was chosen on the basis of the highest correlation with the total score for that value and for its content validity. The authors have reported two measures of reliability for the entire Sallence Inventory, which includes the Role Values Grid. Alpha coefficients for high-school, college and adult samples were in the range of .81 to .95, but the test-retest reliabilities were relatively low - only .56 in a sample of college students for value-attainment expectations through the work-role (Table 5, page 55). The reported standardized item alpha is .91 (Employment and Immigration Canada, 1982) for all the items in the work-role taken together. If item B37 is deleted alpha is reduced to .89, and .90 if item B42 is deleted from the Role Values Grid. The item-total scale correlation was .68 for B37, and .55 for B42 (Employment and Immigration Canada, 1983). Reliability and validity data regarding items B72 and B77 were not available.

In the present study, the alpha coefficients for the five variables assessing value-attainment expectations through life-roles (work, student, family, citizen and leisurite) ranged from .73 to

.90 (Table 5, page 55), suggesting acceptable internal consistency.

Perceived Peer Expectations Scale

The Perceived Peer Expectations Scale consists of a 24-item five-point Likert-Type scale in which the participant was asked to respond the way she thought her close friends would generally view the appropriate role of women. These items were similar in content to those used in the AWS, concerning relative importance of career vs. marriage for women, functional utility of traditional sex roles and inherent differences between men and women as a factor underlying traditional sex-roles. It is possible to obtain two separate scores, i) PEERTR, peers' perceived traditionality based on sixteen items with possible scores ranging from 16 to 80, and ii) PEERNTR, peers' perceived non-traditionality based on eight items, with possible scores ranging from 8 to 40, as well as iii) TOTTRAD, a combined score ranging from -24 to +72, scored in the direction of greater perceived traditionality, derived by subtracting PEERNTR from PEERTR. Table 4, page 45, shows mean scores for the present study and the Canter project (1975), indicating less perceived traditionality of peers' attitudes in the present sample.

The Perceived Peer Expectations Scale has been taken from Canter's doctoral research (1975). The Scale was developed by Canter using a pilot sample of 200 female undergraduates, and then used for the final study of another sample of 200 female undergraduate students. The pilot study provided information about response variance and item-scale intercorrelations which was used for further refinement of the Scale. The alpha coefficients for the Scale were from .87 to .89.

In addition, a factor analysis was done using the items in the scale as variables. Items which did not load on any factor were replaced with better items, and items which loaded on more than one factor were revised in order to increase their loadings on a single factor. Suggestions from the participants of the pilot study were also utilized for improving the psychometric properties of the Scale. In the final study, the reported alpha coefficient was .90. The Alpha coefficient for the scale was .59 in the present study, suggesting the bimodality of the two main clusters: Peers' traditionality vs. Peers' non-traditionality.

The Perceived Peer Expectations Scale was used to assess the dependent variable TOTTRAD. In operational terms, hypothesis 4 was as follows:

The mean score of TOTTRAD will be significantly higher for women in the Traditional programs (Group 1) than for women in the Non-traditional programs (Group 2).

Perceived Barriers and Opportunities Scale

Self-reported perceived barriers for, or difficulties in pursuing a Non-traditional career, was specifically associated with the following item:

"The idea that only males should do some jobs and only females should do others is no longer a problem for women who want to work in areas where men make up the large majority of workers."

This item was used to measure the variable PERDIF, to indicate the perceived difficulties of pursuing a non-traditional career. Respondents were asked to indicate by using a 5-point Likert-type

scale to what extent they agreed or disagreed with the statement (1 = Strongly Disagree to 5 = Strongly Agree). This item (C36) is a false-keyed item from the scale 'Perceived Discrimination' (Canter, 1979). Therefore, it was recoded (1=5, 2=4, 4=2, and 5=1), and scored in the direction of greater perceived discrimination. Now, a higher score indicated that the respondent perceived greater barriers or difficulties in pursuing a non-traditional career. The 'Perceived Discrimination Scale' was also developed by Canter for her doctoral research (1975). Reliability and validity data for the individual item C36 were not available, but the whole scale itself had an alpha coefficient of .87.

Operationally defined, hypothesis 5 predicted that:

The mean score on PERDIF will be significantly higher for women in the Traditional programs (Group 1) than for women in the Non-traditional programs (Group 2).

Personal Information

The final material in the questionnaire focused on relevant demographic information to allow controls for Age, SES, etc. if they were warranted.

This included questions regarding:

- the respondent's age;
- the respondents's marital status;

-father's occupational status (professional and managerial, requiring university training), clerical and sales, skilled, (usually requiring community college training), and lastly, semi-skilled, where no special training was required;

-total annual family income (five categories: less than \$20,000, \$20,000 to \$39,999, \$40,000 to \$59,999, \$60,000 to \$79,999, and \$80,000 and more;

-total number of years of education the respondent's mother completed;

-father's attitude toward women's educational/occupational achievement;

-mother's attitude toward women's educational/occupational achievement;

-mother's attitude toward her own occupational/community involvement.

Statistical Analyses for each Hypothesis

Hypothesis 1 was operationally defined as follows:

The mean AWS score of trainees in the Non-traditional programs (Group 2) will be significantly higher (more egalitarian) than the mean AWS score of the trainees in the Traditional programs (Group 1).

In operational terms, hypothesis 4 was defined as follows:

The mean score of TOTTRAD will be significantly higher for women in the Traditional programs (Group 1) than for women in the Non-traditional programs (Group 2).

Operationally defined, hypothesis 5 predicted that:

The mean score on PERDIF will be significantly higher for women in the Traditional programs (Group 1) than for women in the Non-traditional programs (Group 2).

Hypotheses 1,4, and 5 were tested by using Analyses of Co-variance with SES (B95) as a co-variate in each analysis. The three Analyses of Co-variance were, respectively, i) AWS by GROUP (Traditional program vs. Non-traditional program), ii) TOTTRAD by GROUP (Traditional vs. Non-traditional program), and iii) PERDIF by GROUP (Traditional vs. Non-traditional program).

Hypotheses 2a and 2b were operationally defined as follows:

2a) The number of women whose mean INSM score is higher than 26.94 (mean INSM for the total sample) and whose mean EXPF is lower than 31.02 (mean EXPF for the total sample) will be significantly greater in the Non-traditional Group 2 than in the Traditional Group 1.

2b) The number of women whose mean INSM score is lower than 26.94 (mean INSM for the total sample) and whose mean EXPF score is higher than 31.02 (mean EXPF for the total sample) will be significantly greater in the Traditional Group 1 than in the Non-traditional Group 2.

Hypotheses 2a and 2b were tested by two Chi-square analyses, the

first one to examine the differential distribution of Hi INSM-Lo EXPF women, and the second one to examine the differential distribution of Lo INSM-Hi EXPF women, in the Traditional vs. Non-traditional groups. For these statistical analyses the following four sub-groups were formed: Lo INSM-Lo EXPF, Lo INSM-Hi EXPF, Hi INSM-Lo EXPF, and Hi INSM-Hi EXPF. A frequency-table of these four groups formed for the X^2 analyses is given below:

	<u>Number of women in each category</u>	
	Traditional	Non-traditional
	Training Programs	Training programs
	Group 1	Group 2
Lo INSM - Lo EXPF	32	38
Lo INSM - Hi EXPF	35	22
Hi INSM - Lo EXPF	25	47
Hi INSM - Hi EXPF	29	38

For each variable, women scoring higher than the mean of the total sample (N=236) were considered high, and those scoring lower than or equal to the mean were considered low. The mean of INSM was 26.94 and the mean of EXPF was 31.0.

Hypotheses 3ai and 3bi: In operational terms, these hypotheses were:

3ai) The mean score of women in the Traditional Group 1 will be significantly higher than the mean score of the Non-traditional Group 2 on each of the values AES, ALT, SOCI, and SORE.

3bi) The mean score of women in the Non-traditional Group 2 will be significantly higher than the mean score of women in the Traditional Group 1 on each of the values AUTH, AUTO, CRE, PHY, and RISK.

Operationally, the Hypotheses 3aii and 3bii were defined as follows:

3aii) The mean score of women in the Traditional Group 1 will be significantly higher than the mean score of women in the Non-traditional Group 2, for each of the two variables, B37 (VAW-ALT, or, expectations for attaining the value Altruism via work-role) and B77 (VAW-SOCI, or expectations for attaining the value Social Interaction via work-role).

3bii) The mean score of women in the Non-traditional Group 2 will be significantly higher than the mean score of women in the Traditional Group 1, for each of the variables, B42 (VAW-AUTO, or expectations for attaining the value Autonomy via work-role) and B72 (VAW-RISK, or expectations for attaining the value Risk via work-role).

An examination of the Pearson correlations (Table 6, page 69) among the nine Values, and also of the correlations among the expectations for Value-Attainment scores associated with hypotheses 3ai, 3bi, 3aii, and 3bii showed that many of these variables were strongly correlated with one another. This meant that running separate T-tests on each Value and Value-Attainment variable to test for any differences between Traditional and Non-traditional groups would increase the probability of Type I error. In order to solve this problem, hypotheses 3ai, 3aii, 3bi, 3bii were tested by using the multi-variate analyses of variance or MANOVA. For each of these analyses the independent variable was GROUP (Group 1 consisting of trainees in Traditional programs, and Group 2 consisting of trainees in Non-traditional programs). The dependent variables for testing hypotheses 3ai) and 3bi) were the values: AES, ALT, SOCI, SORE,

Table 6

Pearson Product-Moment Correlation-Matrix of Values
and Value-attainment expectations through life-roles

(N=260-283)

Variables	1	2	3	4	5	6	7	8	9
1. AES	1.00	.43	.31	.41	.26	.37	.43	.40	.30
2. ALT		1.00	.56	.48	.24	.20	.11 _a	.34	.21
3. SOCI			1.00	.57	.32	.17 _a	.11 _a	.39	.32
4. SORE				1.00	.31	.37	.21	.28	.41
5. AUTH					1.00	.63	.43	.34	.51
6. AUTO						1.00	.64	.54	.37
7. CRE							1.00	.50	.38
8. PHY								1.00	.35
9. PISK									1.00
Variables	10	11	12	13	14				
10. VAS	1.00	.45	.28	.33	.30				
11. VAW		1.00	.40	.29	.36				
12. VAF			1.00	.18	.30				
13. VAC				1.00	.31				
14. VAL					1.00				

All correlations have p values of <.01

a: p<.05

AUTH, AUTO, CRE, PHY, and RISK. The dependent variables for testing hypotheses 3a11) and 3b11) were: B37 (VAW-ALT), B42 (VAW-AUTO), B72 (VAW-RISK), and B77 (VAW-SOCI).

Hypothesis 6 was operationally defined as follows:

For Hi INSM women the mean score of ZD1 [Value-attainment Expectations through student and work-roles, (ZD1 = mean of ZVAS and ZVAW)] will be significantly higher than the mean score of ZD2, [Value-attainment expectations through family, citizen, and leisure roles (ZD2 = mean of ZVAF, ZVAC and ZVAL)]. For Lo INSM women there will be no significant difference between the mean scores of ZD1 and ZD2.

In other words, hypothesis 6 predicted that: where $ZD1 = (ZVAS + ZVAW)/2$ and $ZD2 = (ZVAF + ZVAC + ZVAL)/3$, for Hi INSM women $ZD1 > ZD2$, and for Lo INSM women, $ZD1 - ZD2$ will not be significant, as examined by T-tests.

For a valid comparison between expectations of Value-Attainment through student and work-roles (VAS and VAW respectively) on one hand, and Value-Attainment expectations through family, citizen and leisure roles (VAF, VAC, and VAL respectively) on the other, the scores of these five variables had to be transformed into standard scores. The new standard score variables were called ZVAS, ZVAW, ZVAF, ZVAC, and ZVAL respectively. The mean of the first two standard score variables, ZVAS and ZVAW, was called ZD1, and the mean of the other three variables, ZVAF, ZVAC, and ZVAL, was called ZD2. Arithmetically, $ZD1 = (ZVAS + ZVAW)/2$ and $ZD2 = (ZVAF + ZVAC + ZVAL)/3$. T-tests were then performed between ZD1 and ZD2 separately for Hi INSM women, and again for Lo INSM women. Table 7, page 71, shows that the mean INSM score of the Hi INSM women was significantly different ($p < .001$) from the mean INSM score of the Lo INSM women.

Table 7

T-test between the mean INSM score of the Hi INSM sub-group
vs. the mean INSM score of the Lo INSM sub-group
(Independent Variable in Hypothesis 6)

Mean	S.D.	Mean	S.D.	t-value	df	significance
<u>Lo INSM</u> <u>(N=129)</u>		<u>Hi INSM</u> <u>(N=145)</u>				
23.76	2.5	29.77	2.3	-20.68	260	0.001

Lo INSM (Low instrumental) = Lower than or equal to the mean instrumental M score (26.94) for the total N = 236.

Hi INSM (High instrumental) = Higher than the mean instrumental M score (26.94) for the total N = 236.

Hypothesis 7 was operationally defined as follows:

Within the Non-traditional group, Hi AWS women (those who scored above the mean AWS score for the total sample = 27.3) will have a significantly higher mean score for MARKS (Grade Point Average) than Lo AWS women (those who scored equal to or less than the mean AWS score for the total sample = 27.3).

To test hypothesis 7, women in the Non-traditional group were first divided into two sub-groups: Hi AWS (those who scored higher than the group mean = 27.3) or AWSGR 1, and Lo AWS (those who scored lower than or equal to the group mean = 27.3) or AWSGR 2. These two sub-groups were then compared on MARKS or GPA by using a T-test. Table 8, page 73, shows that the difference in the mean AWS score between the Hi AWS and the Lo AWS sub-groups was significant ($p < .001$).

Table 8

T-test between the mean AWS score of the Hi AWS sub-group
vs. the mean AWS score of the Lo AWS sub-group
(Independent Variable in Hypothesis 7)

Mean	S.D.	Mean	S.D.	t-value	df	significance
<u>Lo AWS</u> <u>(N=122)</u>		<u>Hi AWS</u> <u>(N=135)</u>				
19.57	6.1	34.21	4.1	-22.30	207	0.001

Lo AWS (traditional sex-role attitudes) = lower than or equal to the mean AWS score (27.3) for the total N = 257.

Hi AWS (non-traditional sex-role attitudes) = higher than the mean AWS score (27.3) for the total N = 257.

CHAPTER III

RESULTS

In this chapter the results of the statistical analyses used to test the research hypotheses are reported. First, the effects of SES on any of the observed results are presented. Then each operational hypothesis is re-stated along with the results of its statistical test. The next section summarizes the results. The chapter concludes with a description of the results of some supplementary analyses which were carried out to get a better understanding of the inter-relationships among the variables investigated. For each analysis, participants who did not respond to all of the questionnaire items for all of the variables, were excluded from the analysis. Therefore, the N was not the same in every analysis. Finally, since these statistical analyses involved a large number of contrasts assumed to be independent, the results must be interpreted with caution.

Socio-Economic Status

A number of investigators have found that people from different socio-economic levels differ in their choice of traditional vs. non-traditional occupations (Lemkau, 1979; Carney and Morgan, 1981; Ethington et al., 1987). In this study also, there was a suggestion of an SES difference between the two major groups (Traditional and Non-traditional, see Table 2, page 39). Therefore, SES (B95) was included as a co-variate in the analyses of co-variance employed to examine hypotheses 1,4 and 5 which predicted differences between these two groups in sex-role attitudes, perceived peers' expectations

Table 9

A Summary of the Analysis of Co-variance:
Sex-Pole Attitudes
(AWS) by GROUP with SES (B95)

Source of Variation	SS	DF	MS	F	Significance
Co-variate SES (B95)	146.081	1	146.081	1.97	0.162
GROUP	906.493	1	906.493	12.23	0.001
Residual	15866.099	214	74.141	-	-
P ² = 0.06					
Mean AWS Group 1 = 25.19 S.D. = 8.9					
Mean AWS Group 2 = 28.90 S.D. = 8.2					

Table 10

A Summary of the Analysis of Co-variance:
Perceived Peer Expectations
(TOTTRAD) By GROUP with SES (B95)

Source of Variation	SS	DF	MS	F	Significance
Co-variate SES (B95)	30.333	1	30.333	0.239	0.625
GROUP	1405.909	1	1405.909	11.085	0.001
Residual	27141.684	214	126.830	-	-

$R^2 = 0.05$

Mean TOTTRAD Group 1 = 54.87 S.D. = 11.09

Mean TOTTRAD Group 2 = 50.8 S.D. = 11.38

Table 11

A Summary of the Analysis of Co-variance:
Perceived Difficulties of Pursuing
a Non-traditional Career
(PERDIF) by GROUP with SES (B95)

Source of Variation	SS	DF	MS	F	Significance
Co-variate SES (B95)	0.593	1	0.593	0.603	0.438
GROUP	7.033	1	7.033	7.156	0.008
Residual	210.310	214	0.983	-	-

$R^2 = 0.04$

Mean PERDIF Group 1 = 3.01 S.D. = .88

Mean PERDIF Group 2 = 3.39 S.D. = 1.11

Table 12

A Summary of the Analysis of Co-variance:
MAPKS By GROUP with SES (B95)

Source of Variation	SS	DF	MS	F	Significance
Co-variate SES (B95)	0.378	1	0.378	0.531	0.467
GROUP	0.447	1	0.447	0.628	0.429
Residual	179.271	252	0.711	-	-

$R^2 = 0.005$

Mean MAPKS Group 1 = 7.21 S.D. = .53

Mean MAPKS Group 2 = 7.28 S.D. = 1.21

Table 13

Pearson Product-Moment Correlations
between SES (B95) and other variables

<u>Values</u>	<u>r</u>
AES	-.02
ALT	-.20 (p<.001)
SOCI	-.08
SORE	-.05
AUTO	-.07
AUTH	-.15 (p<.01)
CRE	-.03
RISK	-.08
PHY	-.01
 <u>Value-attainment expectations</u> <u>through life-roles</u>	
VAS	-.08
VAW	-.07
VAF	.03
VAC	-.13 (p<.05)
VAL	-.06
 <u>Other variables</u>	
INSM	-.09
EXPF	-.12
AWS	-.08
MARKS	-.05

and perceived difficulties. Tables 8, 9, and 10 present these data. Another Analysis of Co-variance with SES as a co-variate (see Table 12) was conducted to examine whether differences in academic performance (MARKS as measured by GPA) were due in part to the differences in their SES.

Tables 9, 10, 11 and 12 (pages 75 to 78) show that in none of these analyses the effect (statistical) of SES reached acceptable level of significance. This indicated that in the present study, the slight differences in SES did not contribute significantly to observed differences in sex-role attitudes, perceived expectations of peers, perceived difficulties in pursuing a non-traditional career, and academic performance. In subsequent analyses aimed at examining hypotheses 2,3 and 7, therefore, SES was not included as a co-variate. The Pearson Product-Moment correlations between SES and the other major variables also showed that SES (B95) did not correlate significantly with the majority of the variables associated with these hypotheses (Table 13, page 79). At no time was more than 4% of the dependent variable variance associated with SES.

Sex-role attitudes

The first hypothesis compared students in traditional training programs (Group 1) with those in non-traditional (for females) training programs (Group 2) with respect to their sex-role attitudes (AWS). Three scores were derived for each participant: i) a 'traditional' score (AWSTR) based on only those items where strong disagreement (5) indicates the most traditional response, ii) a 'non-traditional' score (AWSNTR) based on only the items where strong disagreement (5) indicates the most egalitarian response, and iii) a

combination of these two scores (AWS=AWSNTR-AWSTR) consisting of all the items where the higher the score, the more egalitarian is the participant's sex-role attitude.

Hypothesis 1 was operationally defined as follows:

The mean AWS score of trainees in the Non-traditional programs (Group 2) will be significantly higher (more egalitarian) than the mean AWS score of the trainees in the Traditional programs (Group 1).

The analysis of co-variance used to test Hypothesis 1 is presented in Table 9. The main effect of GROUP was highly significant ($F=12.23$, $df=1,214$) at the level of $p<.001$. The group mean AWS score for the Traditional Group 1 was 25.19 and it was 28.90 for the Non-traditional Group 2.

Thus, the results supported the first hypothesis that women in the Non-traditional training programs did hold significantly more egalitarian sex-role attitudes than women in the traditional training programs.

Instrumental-Expressive Traits

The second hypothesis sought to establish a relationship between the participants' self-rated Instrumental and Expressive traits and their participation in Non-traditional vs. Traditional training programs.

Hypotheses 2a) and 2b) were operationally defined as follows:

2a) The number of women whose mean INSM score is higher than 26.94 (mean INSM for the total sample) and whose mean EXPF is lower than 31.02 (mean EXPF for the total sample) will be significantly greater in the Non-traditional Group 2 than in the Traditional Group 1.

2b) The number of women whose mean INSM score is lower than 26.94 (mean INSM for the total sample) and whose mean EXPF score is higher than 31.02 (mean EXPF for the total sample) will be significantly greater in the Traditional Group 1 than in the Non-traditional Group 2.

These hypotheses were tested by Chi-square analyses, for which the four following groups were created:

Low Instrumental-Low Expressive (Lo INSM-Lo EXPF)

Low Instrumental-High Expressive (Lo INSM-Hi EXPF)

High Instrumental-Low Expressive (Hi INSM-Lo EXPF)

High Instrumental-High Expressive (Hi INSM-Hi EXPF)

The present study used the means of the INSM and the EXPF distributions as the cut-off scores to create these sub-groups (Mean INSM = 26.94 and Mean EXPF = 31.02). Figure 1, page 84, shows the percentages of Lo INSM-Hi EXPF and of Hi INSM-Lo EXPF women in the Traditional vs. Non-traditional Groups. Table 14 presents the results of the two Chi-square analyses used to test hypotheses 2a and 2b.

In the first Chi-square analysis (a), it can be seen that there were significantly more Hi INSM-Lo EXPF women in the Non-traditional Group 2 than in the Traditional Group 1. The difference was significant ($X^2 = 6.722$) at $p < .01$ level, offering confirmation of hypothesis 2a. The second analysis (b) tested for the differential distribution of Lo INSM-Hi EXPF women in the Traditional Group 1 vs. the Non-traditional Group 2. Although the direction of the difference ($X^2 = 2.965$) was as expected, it did not reach significance, and thus hypothesis 2b) was not supported.

Table 14

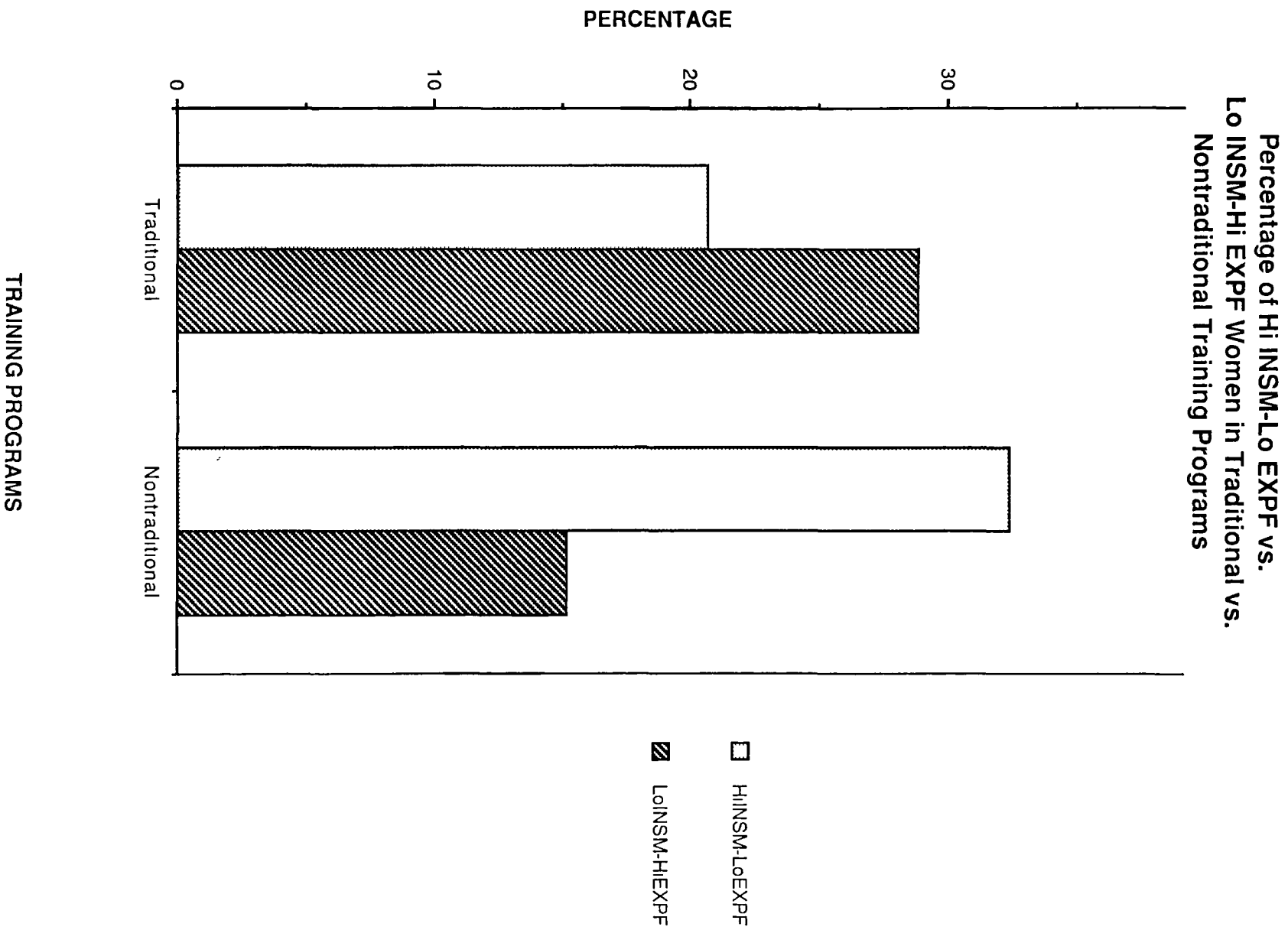
Chi-square Analyses of H₁ INSM-Lo EXPF and Lo INSM-H₁ EXPF
in Traditional (Nursing)
vs. Non-traditional (Trades & Technology) Groups

	Traditional Group 1	Non-traditional Group 2	DF	X ²	Significance
<u>Number of women</u>					
a) H ₁ INSM-Lo EXPF	25	47	1	6.722	0.010
b) Lo INSM-H ₁ EXPF	35	22	1	2.965	0.085

H₁ INSM-Lo EXPF = Higher than the group mean instrumental M score (26.94) and lower than or equal to the group mean expressive F score (31.02) for the total N = 236.

Lo INSM-H₁ EXPF = Lower than or equal to the group mean instrumental M score (26.94) and higher than the group mean expressive F score (31.02) for the total N = 236.

Figure 1



Values and expectations for value-attainment through work-role

Hypothesis 3 has two main components:

A. The first component predicted differences between women in Traditional programs vs. women in Non-traditional programs on the rated importance of specific Values in their lives.

B. The second component related to their expectations to attain these Values through their work-role.

A. Values

In operational terms, Hypotheses 3ai and 3bi were:

3ai) The mean importance score of women in the Traditional Group 1 will be significantly higher than the mean importance score of the Non-traditional Group 2 on each of the values AES, ALT, SOCI, and SORE.

3bi) The mean importance score of women in the Non-traditional Group 2 will be significantly higher than the mean importance score of women in the Traditional Group 1 on each of the values AUTH, AUTO, CRE, PHY, and RISK.

The Pearson Product-Moment correlations presented in Table 6 (page 69) showed that there were significant (mostly $p < .004$ to $.001$) positive correlations among these Values. Under these circumstances, carrying out separate T-tests or univariate analyses of variance to examine group-differences on each value would increase the probabilities of Type I errors (Harris, 1975). Therefore, multivariate analyses of variance were employed to test hypotheses 3ai and 3bi. The results are reported in Table 15, page 86. First of all, the multivariate F is significant (Hotelling's $F = 22.11$, $df = 9, 259$, $p < .001$) suggesting real group differences with respect to at least some of these values. It can be seen that the women in the

Table 15

A Summary of the results of the
Multivariate Analysis of Variance of Values by GROUP

 Dependent Variable : GROUP

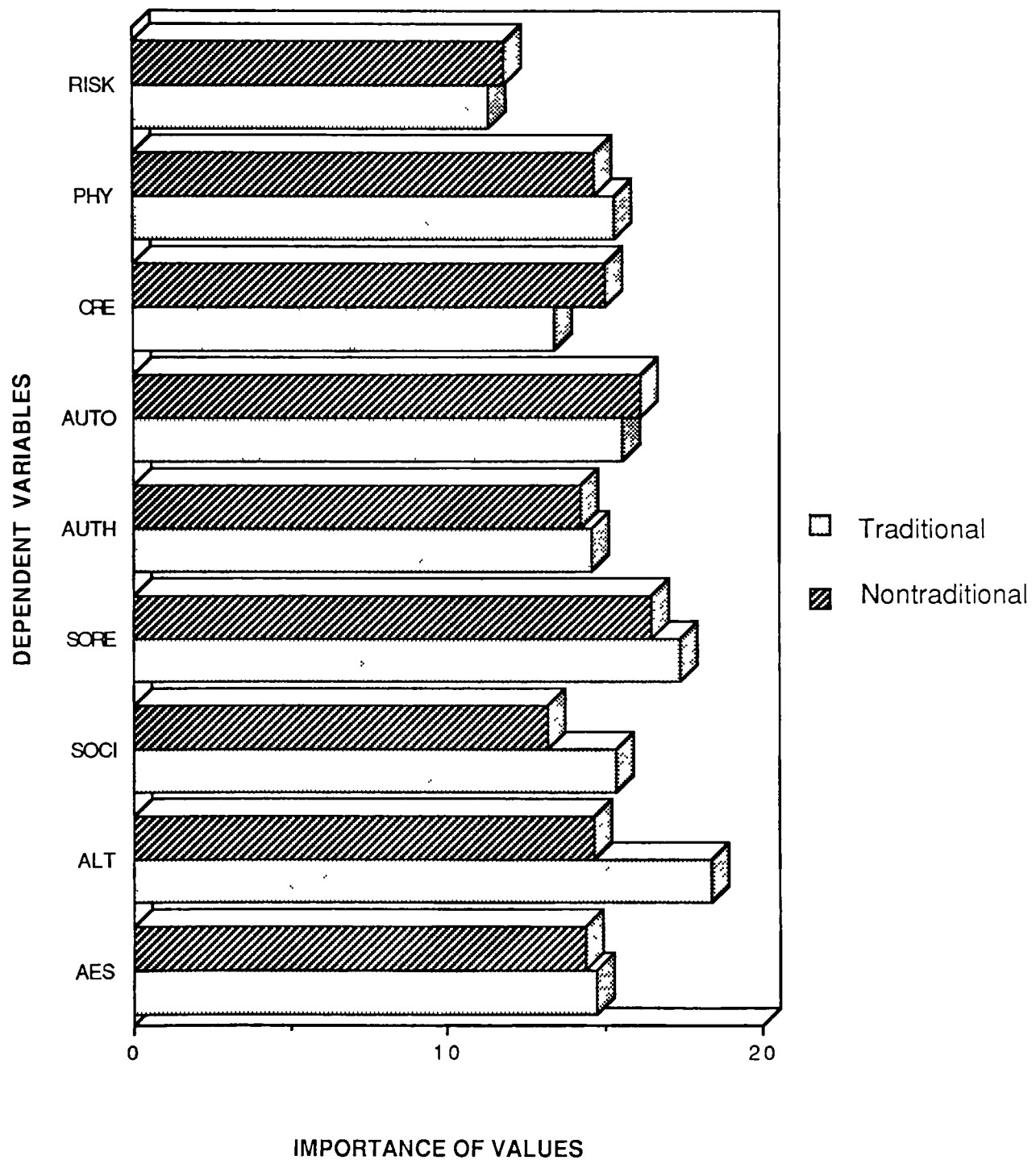
Independent variables	Traditional Group 1	Non-traditional Group 2	F	df	Significance
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	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>			
AES	14.72	2.9	14.37	3.2	.87	1,267	.352
ALT	18.37	2.2	14.67	3.2	116.97	1,267	.001
SOCI	15.38	2.6	13.16	2.8	44.90	1,267	.001
SORE	17.38	2.5	16.51	2.5	7.91	1,267	.005
AUTH	14.59	2.6	14.25	3.1	.95	1,267	.330
AUTO	15.57	2.5	16.17	2.6	3.76	1,267	.053
CRE	13.40	2.9	14.99	3.3	17.38	1,267	.001
PHY	15.30	2.9	14.70	3.3	-2.43	1,267	.120
RISK	11.33	3.1	11.76	3.7	1.03	1,267	.311

Hotelling's F = 22.11 9,259 .001

Figure 2

**Importance of Values in Women of
Traditional vs. Nontraditional Training
Programs**



Traditional Group 1 rated Altruism ($F=116.97$, $df=1,267$ $p<.001$), Social Interaction ($F=44.90$, $df=1,267$, $p<.001$), and Social Relations ($F=7.91$, $df=1,267$, $p<.005$) as significantly more important than the women in Non-traditional Group 2, providing substantial support for hypothesis 3ai. The differences between the two groups, however, were less dramatic with respect to the values mentioned in hypothesis 3bi. The Non-traditional Group 2 scored significantly ($p<.001$) higher than the Traditional Group 1 on the importance of Creativity ($F=17.28$, $df=1,267$), and Autonomy ($F=3.76$, $df=1,269$, $p<.05$). The differences in the rated importance of other values between the two groups were not significant. There was thus, partial support for hypotheses 3ai and 3bi, as can also be seen in Figure 2, page 87, showing the rated importance of these nine values for women in Traditional vs. Non-traditional training programs.

B. Value-attainment expectations through Work-role

Hypotheses 3aii and 3bii related to the expectations the two groups of women had of attaining the values Altruism, Social Interaction, Autonomy, and Risk through their work-role. In operational terms:

3aii) The mean score of women in the Traditional Group 1 will be significantly higher than the mean of women in the Non-traditional Group 2 for each of the two variables, B37 (VAW-ALT, or, expectations for attaining the value Altruism via work-role) and B77 (VAW-SOCI, or expectations for attaining the value Social Interaction via work-role).

3bii) The mean score of women in the Non-traditional Group 2 will be significantly higher than the mean score of women in the Traditional Group 1 for each of the two variables, B42 (VAW-AUTO, or expectations for attaining the value Autonomy

via work-role) and B72 (VAW-RISK, or expectations for attaining the value Risk via work-role) .

Again, the correlations found among the values examined in Table 6 (page 69), make separate univariate comparisons unwarranted in testing hypotheses 3a11 and 3b11. Therefore, these hypotheses were also tested by using a MANOVA. The multivariate analyses reported in Table 16 provide strong support for both of the directional hypotheses (Hotelling's $F=15.67$, $p<.001$). As predicted, women in the Traditional Group 1 reported significantly higher expectations than women in the Non-traditional Group 2 to attain the values Altruism ($F=24.31$, $df=1,279$, $p<.001$) and Social Interaction ($F=22.25$, $df=1,279$, $p<.001$) through their work-role. Similarly, compared to the Traditional Group 1, the Non-traditional Group 2 expressed significantly higher expectations to attain the values Autonomy ($F=7.57$, $df=1,279$, $p<.006$) and Risk ($F=10.90$, $df=1,279$, $p<.001$) through their work role. Figure 3, page 91, presents these distinctive value-attainment expectations of women in the Traditional vs. Non-traditional training programs.

Perceived Peer Expectations

In operational terms, hypothesis 4 was as follows:

The mean score of TOTTRAD (perceived traditionality of peers' expectations regarding women's roles and rights) will be significantly higher for women in the Traditional programs (Group 1) than for women in the Non-traditional programs (Group 2).

The results were presented in Table 10, page 76. The highly significant ($F=11.09$, $df=1,214$, $p<.001$) main effect of 'GROUP'

Table 16

A Summary of the results of the
Multivariate Analysis of Variance
of VAW-ALT, VAW-SOCI, VAW-AUTO, and
VAW-RISK by GROUP

 Dependent Variable : GROUP

Independent variables	Traditional Group 1	Non-traditional Group 2	F	df	Significance
--------------------------	------------------------	----------------------------	---	----	--------------

Value	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>
-------	-------------	-------------	-------------	-------------

Attainment
Expectations
through
work-role

VAW-ALT (B37)	3.59	.58	3.18	.79	24.31	1,279	.001
VAW-SOCI (B77)	3.50	.64	3.11	.76	22.25	1,279	.001
VAW-AUTO (B42)	3.11	.73	3.36	.77	7.57	1,279	.006
VAW-RISK (B72)	2.62	1.09	3.04	1.02	10.90	1,279	.001

Hotelling's F = 15.67 4,276 .001

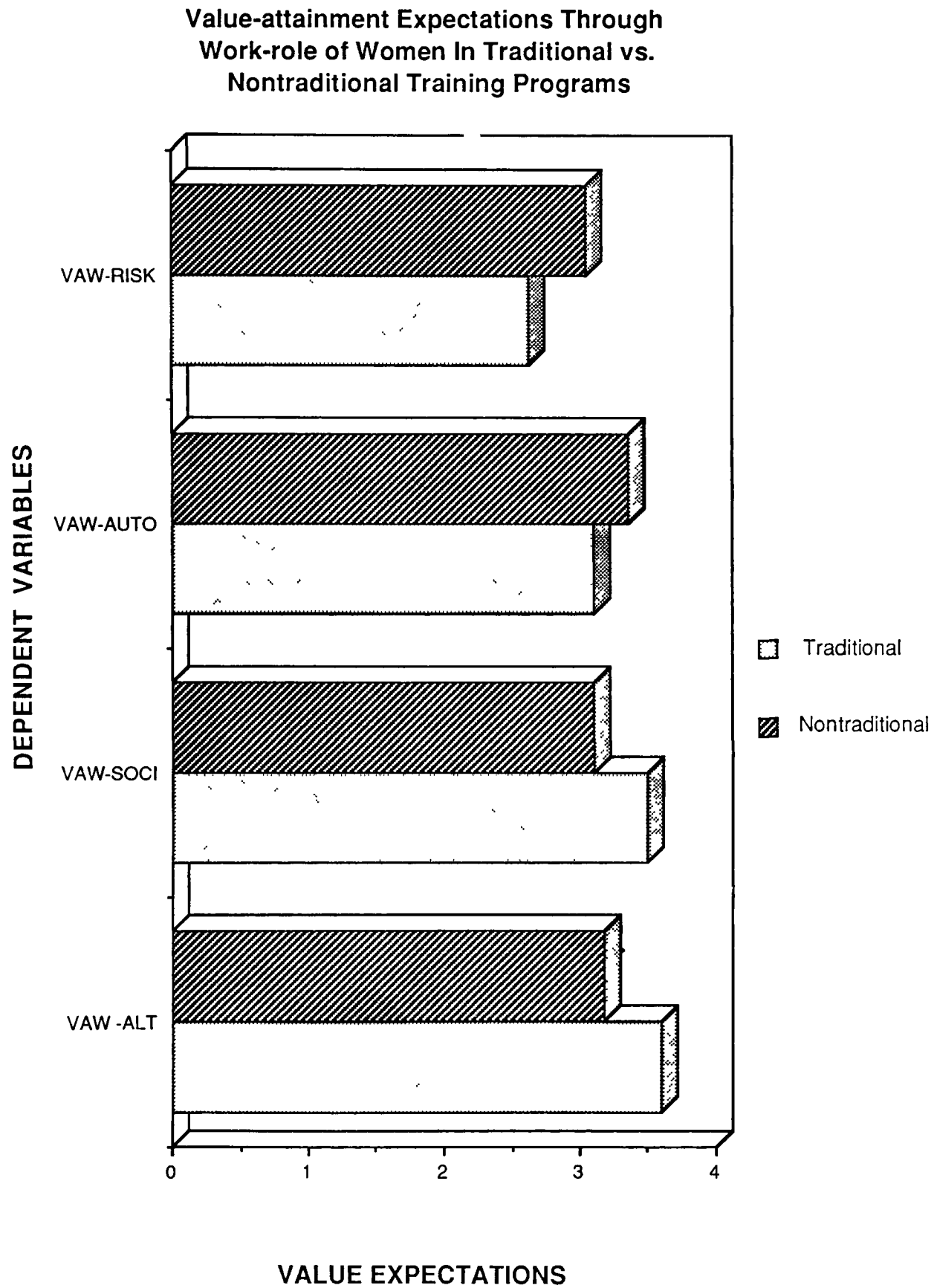
VAW-ALT = Expectations for attaining the value Altruism through the work-
role

VAW-SOCI = Expectations for attaining the value Social Interaction through
the work-role

VAW-AUTO = Expectations for attaining the value Autonomy through the work-
role

VAW-RISK = Expectations for attaining the value Risk through the work-
role

Figure 3



together with the means for each group indicated that the Traditional Group 1 scored significantly higher and the Non-traditional Group 2 scored significantly lower on the perceived traditionality of peers' expectations. The perceived peer expectations of the trainees in the traditional programs were more traditional than those of the trainees in the non-traditional programs. Thus, directional hypothesis 4 was supported by the data.

Perceived Difficulties in Pursuing a Non-traditional Career

Operationally defined, hypothesis 5 predicted that:

The mean score on PERDIF will be significantly higher for women in the Traditional programs (Group 1) than for women in the Non-traditional programs (Group 2).

PERDIF (perceived difficulties in pursuing a non-traditional career) was assessed by questionnaire item C-36. Table 11, page 77 presents the results of the Analysis. Contrary to expectations, it was the Non-traditional Group 2 ($\bar{X}$ = 3.39, S.D.=1.11) which scored significantly higher ($F=7.156$, $df=1,214$, $p<.008$) than the Traditional Group 1 ($\bar{X}$ = 3.01, S.D.=.88) suggesting that the women actually in the non-traditional programs perceived greater difficulties in pursuing a non-traditional career. Thus, results were significant, but in a direction opposite to this directional hypothesis.

Value-attainment expectations through life-roles of High-instrumental (Hi INSM) vs. Low-Instrumental (Lo INSM) women

Hypothesis 6 stated that value attainment expectations through work and student-roles will be greater for High-Instrumental than

Low-Instrumental women, as compared to their value-attainment expectations through family, citizen or leisure-roles. In operational terms:

a) Among Hi INSM women the mean score of ZD1 (value-attainment expectations through student and work-roles, $ZD1 = \text{mean of ZVAS and ZVAW}$) will be significantly higher than the mean score of ZD2 (Value-attainment expectations through family, citizen, and leisure roles, $ZD2 = \text{mean of ZVAF, ZVAC and ZVAL}$). Hi INSM referred to those women who scored greater than the group INSM mean score 26.94.

b) Among Lo INSM women (those who scored equal to or less than 26.94), there will be no significant difference between the mean scores of the variables ZD1 and ZD2.

In other words, hypothesis 6 predicted that as examined by T-tests, for Hi INSM women, the mean score of $ZD1 > \text{the mean score of } ZD2$; but for Lo INSM women, the mean score of $ZD1 - \text{the mean score of } ZD2$ will not be significant. $ZD1 = (ZVAS + ZVAW)/2$ and $ZD2 = (ZVAF + ZVAC + ZVAL)/3$.

In order to test Hypothesis 6, the five different role-related value-expectation scores (VAS, VAW, VAF, VAC, VAL) for each participant were first transformed into standard scores (ZVAS, ZVAW, ZVAF, ZVAC and ZVAL respectively). Then the mean of ZVAS plus ZVAW - labelled ZD1, and the mean of ZVAF, plus ZVAC, plus ZVAL - labelled ZD2, were calculated. T-tests were then performed separately between ZD1 vs. ZD2 for a) High-Instrumental (Hi INSM) women, and again, for b) Low-Instrumental (Lo INSM) women.

As can be seen in Table 17 (page 94), and also in Figure 4 (page 95), for neither group was the difference between ZD1 and ZD2 statistically significant. Thus, hypothesis 6 was not supported by the present data.

Table 17

T-tests of ZD1 vs. ZD2 for H1 INSM and Lo INSM women

	ZD1		ZD2		t-value	df	2-tail p
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>			
H1 INSM Women	-0.12	0.08	-0.08	0.07	-0.55	108	0.59 ns
Lo INSM Women	0.07	0.83	0.03	0.70	0.64	133	0.52 ns

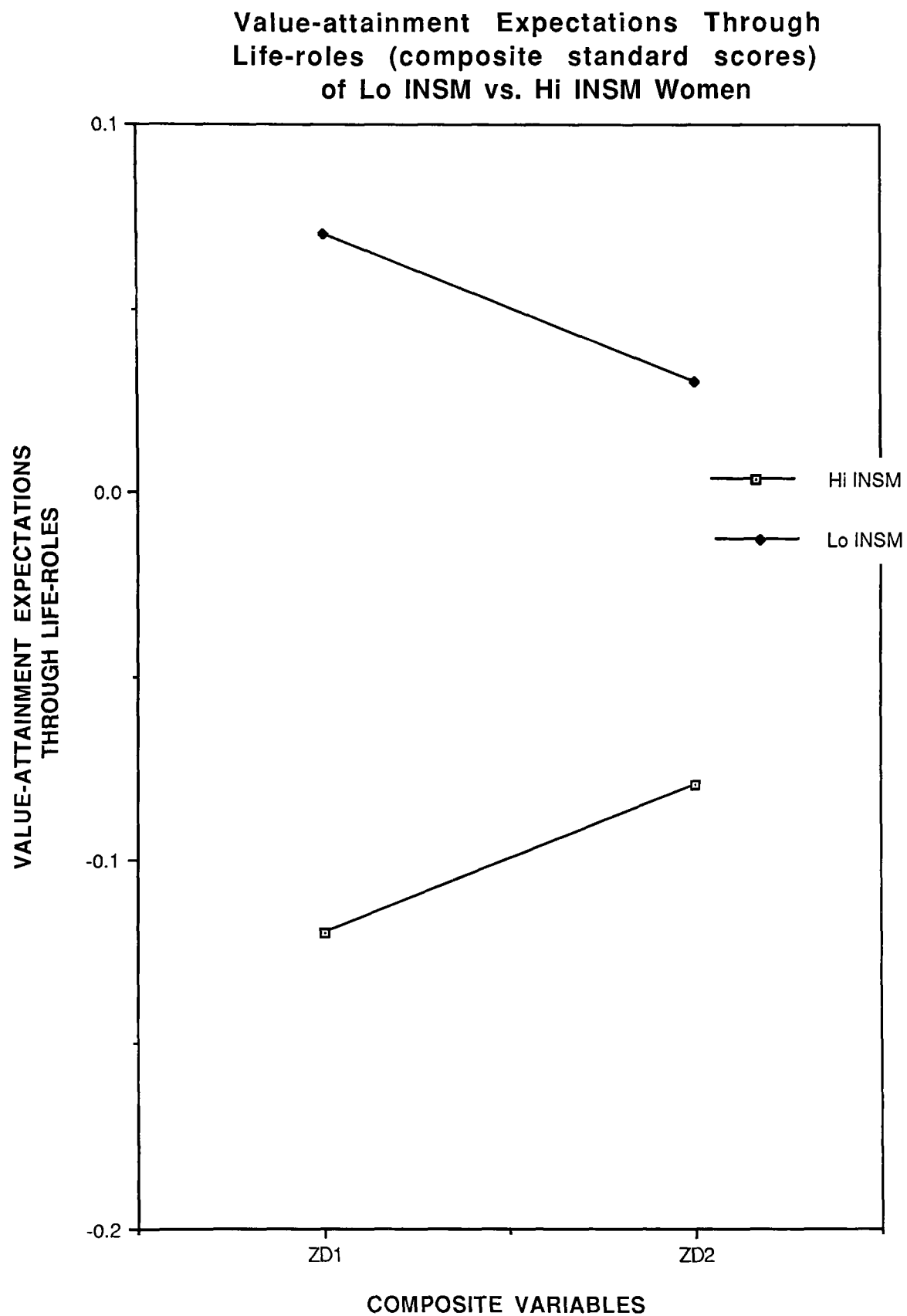
ZD1 (Value-attainment expectations through work and student roles) = (VAW + VAS)/2

ZD2 (Value-attainment expectations through family, leisure, and citizen roles) = (VAF + VAL + VAC)/3

H1 INSM = Higher than the mean instrumental M score (26.94) for the total N = 236.

Lo INSM = Lower than or equal to the mean instrumental M score (26.94) for the total N = 236.

Figure 4



Sex-role attitudes and Performance in Non-traditional training programs

Hypothesis 7 was operationalized as follows:

Among trainees in the Non-traditional programs (Group 2), Hi AWS women (those scoring above 27.3, the mean AWS score for the total sample), will have a significantly higher mean score on MARKS (Grade Point Average) than Lo AWS women (those who scored less than or equal to 27.3).

Since the intent of the hypothesis was to find out if women with more egalitarian sex-role attitudes would perform better in Non-traditional training programs than women with traditional sex-role attitudes, the criterion used to select the Lo AWS and Hi AWS women was the mean (27.3) of the combined group of all participants in this study. The results of the T-test used to compare Lo AWS and Hi AWS groups on MARKS are presented in Table 18, page 97. A highly significant t-value ($t=-4.75$, $df=107$, $p<.001$) provided support for directional hypothesis 7.

A Summary of the Results: Tests of Research Hypotheses

The majority of the directional hypotheses received support from the data. To summarize the main findings:

1) Women who participated in Traditional vs. Non-traditional training programs differed from each other in their sex-role attitudes. Women holding more traditional sex-role attitudes tended more to participate in traditional study-programs, and by contrast, women holding more egalitarian sex-role attitudes tended more to participate in Non-traditional study-programs.

Table 18

T-test of H₁ AWS vs. Lo AWS women
in Non-traditional (Trades & Technology)
Group 2 on MAR'S (GPA)

Lo AWS		H ₁ AWS		t-value	df	Significance
<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>			
6.80	1.01	7.62	0.92	-4.75	107	0.001

H₁ AWS (Egalitarian sex-role attitudes) = Higher than the mean AWS score (27.3) for the total N = 257.

Lo AWS (Traditional sex-role attitudes) = Lower than or equal to the mean AWS score (27.3) for the total N = 257.

2) Women in the Non-traditional training programs as compared to women in the Traditional programs tended to describe themselves in terms of more instrumental than expressive traits.

3) Women in Traditional programs in comparison with those in Non-traditional programs, tended to attach more importance to the Values Altruism, Social Interaction and Social Relations. Women in Non-traditional programs, in comparison, tended to attach more importance to the values Autonomy and Creativity.

4) Women in the Traditional programs expected to attain the Values Altruism and Social Interaction through their work role more than women in the Non-traditional programs, who, in comparison, expected more to attain the values Autonomy and Risk through their work role.

5) Women in the Traditional programs perceived their peers to hold more traditional expectations regarding women's roles and rights than did women in the Non-traditional training programs.

6) There was no support found for the supposition that Hi Instrumental women expected to fulfil their values more through their student- and work-roles than through their family-, citizen- or leisure-roles, as compared to Lo Instrumental women.

7) Within the Non-traditional programs, women who held more egalitarian sex-role attitudes did perform better in their course-work than women who held traditional sex-role attitudes.

Supplementary Analyses

To provide further insight into the interrelationships among the variables of crucial interest in the present study, the following additional post-hoc analyses were done. These include:

- i) Two separate chi-square analyses (Table 19);
 - a) of the frequencies of Hi AWS (egalitarian sex-role attitudes) women vs. the frequencies of Lo AWS (less egalitarian sex-role attitudes) women in the Traditional (Nursing Group), and
 - b) of the frequencies of Hi AWS (egalitarian) vs. the frequencies of Lo AWS (less egalitarian) women in the Non-traditional (Trades & Technology) Group.

- ii) Two separate chi-square analyses (Table 20);
 - a) of the frequencies of Hi AWS (egalitarian sex-role attitudes) women in the Traditional (Nursing) vs. Non-traditional (Trades & Technology) Groups, and
 - b) of the frequencies of Lo AWS (less egalitarian sex-role attitudes) in the Traditional vs. Non-traditional Groups.

- iii) Four separate sets of pairwise T-tests between the variables VAW, VAS, VAF, VAC, and VAL: for a) Hi instrumental women in Traditional (Nursing) Group (Table 21) , b) Lo instrumental women in Traditional (Nursing) Group (Table 22), c) Hi Instrumental women in Non-traditional (Trades and Technology) Group (Table 23), and d) Lo instrumental women in Non-traditional (Trades and Technology) Group (Table 24);

iv) One T-test comparing the MARKS of Lo AWS vs. Hi AWS women of the Traditional (Nursing) Group 1: using the mean AWS score of the total N consisting of both the Traditional (Nursing) and the Non-traditional (Trades & Technology) Groups (27.3) as the cut-off point between Hi AWS and Lo AWS (Table 25);

v) a Discriminant Analysis between the Traditional vs. the Non-traditional training Groups, using all major dependent variables (Table 26) as potential discriminants and its cross-validation by repeating the analysis with a randomly selected sample of 50% per cent of the Total N (Table 27);

vi) A Multiple Regression Analysis (Table 28) to predict Group-membership in the Traditional vs. Non-traditional Groups, using the cross-validated discriminating variables from Analysis v;

vii) a Discriminant Analysis between women scoring above or equal to the Grade Point Average (7.2) vs. those scoring below the Grade Point Average in the Traditional training Group, using all major dependent variables (Table 26) as potential discriminants and its cross-validation by repeating the analysis with a randomly selected sample of 50% per cent of the Traditional Group (Table 29);

viii) Discriminant Analysis between Hi GPA (higher than or equal to 7.2) vs. Lo GPA (lower than 7.2) women in the Non-traditional training Group, using all major dependent variables (Table 26) as potential discriminants and its cross-validation by repeating the analysis with a

randomly selected sample of 50% per cent of the Non-traditional Group (Table 30);

ix) Two Multiple Regression Analyses (Tables 31 and 32) to predict Hi vs. Lo academic performance (GPA) GPA-group membership by using the cross-validated discriminating variables from Analyses vii and viii;

x) A factor-analysis to discover the underlying structure of the discriminating variables in Analysis v (Table 33);

xi) Statistical power analyses of the tests of nonsignificant hypothesized differences (Table 34).

Results of the Supplementary Analyses

Sex-role attitudes and membership in Traditional vs. Non-traditional Groups

In order to get a more detailed picture of the situation, a number of chi-square analyses (Tables 19 and 20) were done. The two chi-square analyses reported in Table 19 compared:

a) the frequencies of more egalitarian Hi AWS women with the frequencies of less egalitarian Lo AWS women in the Traditional (Nursing) Group, and again,

b) the frequencies of Hi AWS women with the frequencies of Lo AWS women in the Non-traditional (Trades & Technology) Group.

The data in Table 19, page 102, and Figure 5, page 103, show that the number of Hi AWS (egalitarian) vs. Lo AWS women in the Traditional

Table 19

Chi-square Analyses

a) of H1 AWS vs. Lo AWS women in the Traditional (Nursing) Group 1

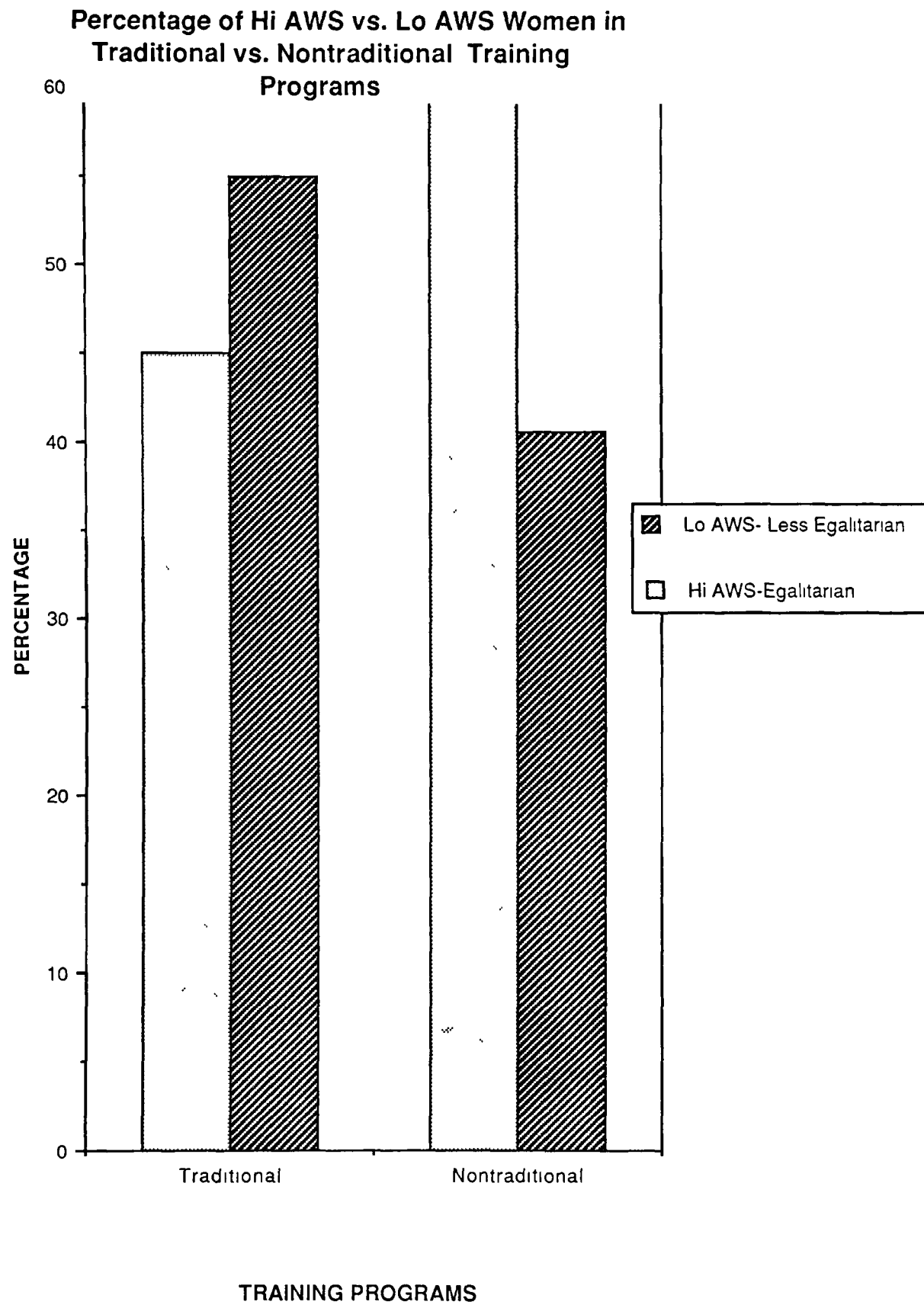
b) of H1 AWS vs. Lo AWS women in the Non-traditional
(Trades & Technology) Group 2

	H1 AWS H1 Egalitarian	Lo AWS Lo Egalitarian	X ²	df	Significance
	<u>Number of women</u>				
a) Trad. Group 1 (N=109)	49 (44.95% of Group 1)	60 (55.05% of Group 1)	1.11	1	ns
b) Non-trad. Group 2 (N=133)	79 (59.40% of Group 2)	54 (40.60% of Group 2)	4.70	1	.05

H1 AWS (Non-traditional sex-role attitudes) = Women who scored higher than the mean AWS score (27.3) of the total N = 257.

Lo AWS (traditional sex-role attitudes) = Women who scored lower than or equal to the mean AWS score (27.3) of the total N = 257.

Figure 5



Group (Nursing) was quite similar ($X^2 = 1.11$, $df = 1$, not significant). However, the number of Hi AWS women (egalitarian) was significantly higher than the number of Lo AWS (less egalitarian) women in the Non-traditional Group (Trades & Technology) ($X^2 = 4.70$, $df = 1$, $p < .05$). In other words, the Traditional Group (Nursing) consisted of about an equal number of Hi AWS (egalitarian) and Lo AWS (less egalitarian) women, whereas there were more Hi AWS (egalitarian) women than Lo AWS (less egalitarian) women in the Non-traditional (Trades & Technology) Group.

The chi-square analyses reported in Table 20 compared:

- a) the frequencies of Hi AWS women in the Traditional (Nursing) Group with the frequencies of Hi AWS women in the Non-traditional (Trades & Technology) Group, and
- b) the frequencies of Lo AWS women in the Traditional (Nursing) Group with the frequencies of Lo AWS women in the Non-traditional (Trades & Technology) Group.

The supplementary chi-square analyses in Table 20, page 105 show that the difference in the number of Lo AWS (less egalitarian sex-role attitudes) women in the Traditional (Nursing) Group and the number of Lo AWS women in the Non-traditional (Trades & Technology) Group was not significantly different ($X^2 = .316$, $df = 1$, ns). However, there were more Hi AWS (egalitarian sex-role attitudes) women in the Non-traditional (Trades and Technology) than in the Traditional (Nursing) Group ($X^2 = 7.03$, $df = 1$, $p < .01$).

Table 20
Chi-square Analyses

a) of Hi AWS women in the Traditional (Nursing)
 vs. Non-traditional (Trades & Technology) Groups

b) of Lo AWS women in the Traditional (Nursing)
 vs. Non-traditional (Trades & Technology) Groups

	Traditional	Non-traditional	X ²	df	Significance
	Group 1	Group 2			
	<u>Number of women</u>				
a) Hi AWS	49 (38.28% of Hi AWS)	79 (61.72% of Hi AWS)	7.030	1	.01
b) Lo AWS	60 (52.63% of Lo AWS)	54 (47.37% of Lo AWS)	.316	1	ns

a) Hi AWS (non-traditional sex-role attitudes) = Women who scored higher than the mean AWS score (27.3) of the total N = 257.

b) Lo AWS (traditional sex-role attitudes) = Women who scored lower than or equal to the mean AWS score (27.3) of the total N = 257.

Instrumental Traits and expectations for value-attainment through life-roles

Hypothesis 6 predicted that Hi-Instrumental women would expect to attain their values to a significantly greater extent through their work- and student-roles (VAW and VAS respectively), than through their family- , citizen- or leisure-roles (VAF, VAC, and VAL respectively). A prediction of no significant difference in the Lo Instrumental women's value-attainment expectations through different roles was also made.

Hypothesis 6 was examined by first converting VAW, VAS, VAF, VAC, and VAL into standard-score variables ZVAW, ZVAS, ZVAF, ZVAC, AND ZVAL respectively, and then using two separate T-tests between ZD1 $[(ZVAW + ZVAS)/2]$, and ZD2 $[(ZVAF + ZVAC + ZVAL)/3]$. Table 17, page 94 shows one T-test for the High instrumental women, and another for the Low Instrumental women. The difference between ZD1 and ZD2 was not significant in either case. Thus, Hypothesis 6 was not supported by the T-tests.

To get a better understanding of the relationships among these variables, supplementary t-tests between value-attainment expectations through each pair of roles were carried out separately for Hi-instrumental and then Lo-instrumental women, within the Traditional (Nursing) Group. This was repeated with the Non-traditional (Trades and Technology) Group, as membership in the Traditional vs. Non-traditional Groups might itself function as a moderator variable. Tables 21, 22, 23, and 24 report the data.

A comparison of the results presented in Tables 21 and 22 (pages 107 to 108 and 109 to 110 respectively) revealed that within the Traditional (Nursing) program, there was no difference between the Hi-

Table 21

Pairwise T-tests of the variables VAW, VAS, VAF, VAC and VAL
(Value-attainment expectations through work-role, student-role,
family-role, citizen-role and leisure-role respectively)
for HI INSTRUMENTAL women of Traditional (Nursing) Group

N = 52 to 57

	Mean	S.D.	t-value	df	2-tail p
VAW	31.27	2.7	4.92	54	.001
VAS	28.71	4.3			
VAW	31.24	2.9	1.06	56	ns
VAF	30.77	3.6			
VAW	31.28	2.9	10.22	56	.001
VAC	23.12	5.9			
VAW	31.24	2.9	6.30	53	.001
VAL	26.33	5.8			
VAS	28.63	4.3	-2.90	53	.005
VAF	30.61	3.5			
VAS	28.71	4.3	7.37	54	.001
VAC	23.09	6.0			
VAS	28.54	4.4	2.25	51	.03
VAL	26.63	5.7			

(Table 21 continued)

Table 21 continued

	Mean	S.D.	t-value	df	2-tail p
VAF	30.69	3.5	8.58	55	.001
VAC	23.02	5.9			
VAF	30.74	3.6	5.58	52	.001
VAL	26.34	5.9			
VAC	22.87	5.9	-3.28	53	.002
VAL	26.33	5.8			

Hi Instrumental = higher than the mean instrumental M score (26.94) for the total sample (N=236).

Table 22

Pairwise T-tests of the variables VAW, VAS, VAF, VAC and VAL
(Value-attainment expectations through work-role, student-role,
family-role, citizen-role and leisure-role respectively)
for LO INSTRUMENTAL women of Traditional (Nursing) Group

N = 58 to 63

	Mean	S.D.	t-value	df	2-tail p
VAW	30.24	3.4	4.20	58	.001
VAS	28.10	4.5			
VAW	30.20	3.3	0.33	63	ns
VAF	30.02	4.8			
VAW	30.44	3.1	9.07	60	.001
VAC	23.08	6.3			
VAW	30.44	3.1	7.73	60	.001
VAL	24.89	5.4			
VAS	28.16	4.5	-2.55	60	.02
VAF	29.90	5.1			
VAS	28.31	4.6	6.57	57	.001
VAC	22.90	6.4			
VAS	28.31	4.5	4.63	57	.001
VAL	24.50	5.5			

(Table 22 continued)

Table 22 continued

	Mean	S.D.	t-value	df	2-tail p
VAF	29.94	5.0	7.79	61	.001
VAC	23.19	6.3			
VAF	30.02	5.0	7.37	62	.001
VAL	24.73	5.3			
VAC	23.07	6.4	-2.12	58	.04
VAL	24.92	5.4			

Lo Instrumental = lower than or equal to the mean instrumental M score (26.94) for the total sample (N=236).

instrumental and the Lo-instrumental women in their value-attainment expectations through any of the life-roles. To elaborate, both Hi-instrumental and Lo-instrumental women ranked the work-role and the family-role equally high in value-attainment potential (three out of four comparisons for both VAW and VAF and no significant difference between VAW and VAF was found). The student-role was ranked higher than the leisure-role and the citizen-role, and the leisure role was rated higher than the citizen-role.

On the other hand, in the Non-traditional (Trades and Technology) Group, there indeed were indications of some differences between the Hi-instrumental and the Lo-instrumental women. The data reported in Table 23, pages 112 to 113, showed that Hi-instrumental women expressed significantly higher value-attainment expectations through their work-role than through any other role in all possible comparisons. They also had higher value-attainment expectations through the family-role than through the student, citizen, and leisure roles; through the student-role than through the citizen and leisure roles; and finally, value-attainment expectations through the leisure-role were higher than through the citizen-role. So, according to the perceived value-attainment potential, the rank-order of life-roles was: first, work-role, next family-role, then student-role, followed by leisure-role, and lastly, citizen-role.

However, the results reported in Table 24, pages 114 to 115, suggested that the Lo-instrumental women in the Non-traditional (Trades and Technology) Group were very similar to the Hi-instrumental and Lo-instrumental women in the Traditional (Nursing) Group in their value-attainment expectations through life-roles. The rankings of VAW, VAF,

Table 23

Pairwise T-tests of the variables VAW, VAS, VAF, VAC and VAL
(Value-attainment expectations through work-role, student-role,
family-role, citizen-role and leisure-role respectively)
for HI INSTRUMENTAL women in the Non-traditional
(Trades and Technology) Group

N = 84 to 86

	Mean	S.D.	t-value	df	2-tail p
VAW	30.71	3.8	4.63	84	.001
VAS	27.85	5.7			
VAW	30.71	3.8	3.34	83	.001
VAF	28.64	5.8			
VAW	30.70	3.8	11.64	84	.001
VAC	21.16	8.2			
VAW	30.70	3.8	7.65	83	.001
VAL	26.00	5.4			
VAS	27.85	5.7	-1.16	84	ns
VAF	28.69	5.8			
VAS	27.80	5.7	7.24	85	.001
VAC	21.17	8.1			
VAS	27.79	5.7	2.26	84	.03
VAL	26.00	5.4			

(Table 23 continued)

Table 23 continued

	Mean	S.D.	t-value	df	2-tail p
VAF	28.69	5.8	7.52	84	.001
VAC	21.24	8.1			
VAF	28.61	5.8	3.57	83	.001
VAL	26.07	5.4			
VAC	21.20	8.2	-4.96	84	.001
VAL	26.00	5.4			

H1 Instrumental = higher than the mean instrumental M score (26.94) for the total sample (N=236).

Table 24

Pairwise T-tests of the variables VAW, VAS, VAF, VAC and VAL
(Value-attainment expectations through work-role, student-role,
family-role, citizen-role and leisure-role respectively)
for LO INSTRUMENTAL women in the Non-traditional
(Trades and Technology) Group

N = 55 to 58

	Mean	S.D.	t-value	df	2-tail p
VAW	29.60	3.3	4.49	57	.001
VAS	26.71	5.5			
VAW	29.60	3.3	.14	57	ns
VAF	29.52	5.1			
VAW	29.55	3.4	8.21	55	.001
VAC	21.48	7.2			
VAW	29.55	3.4	8.89	55	.001
VAL	22.63	6.4			
VAS	26.71	5.5	-3.66	57	.001
VAF	29.52	5.1			
VAS	26.71	5.5	4.98	55	.001
VAC	21.48	7.2			
VAS	26.71	5.5	4.14	55	.001
VAL	22.63	6.4			

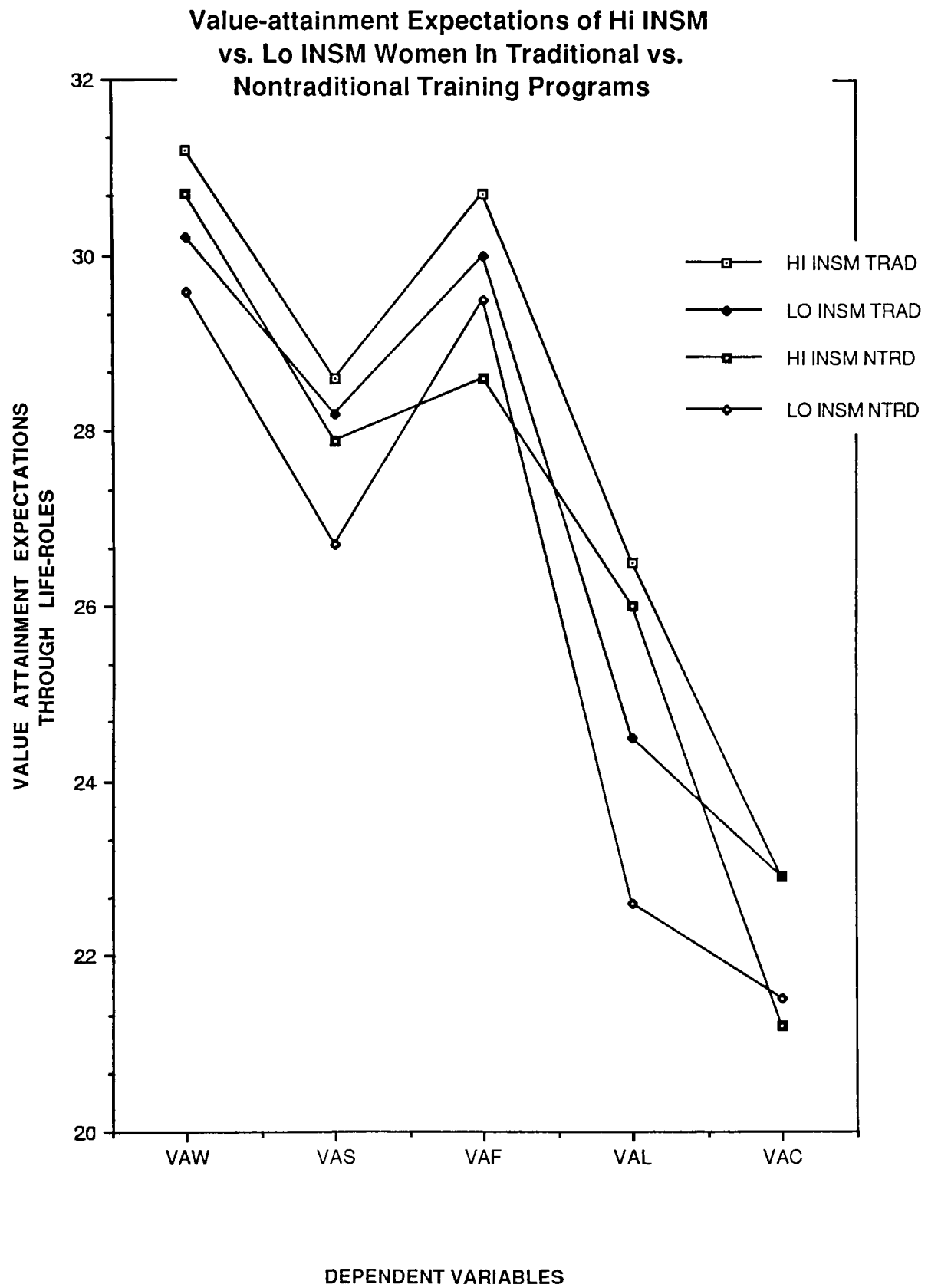
(Table 24 continued)

Table 24 continued

	Mean	S.D.	t-value	df	2-tail p
VAF	29.63	5.1	7.12	55	.001
VAC	21.48	7.2			
VAF	29.63	5.1	7.09	55	.001
VAL	22.63	6.4			
VAC	21.42	7.2	-1.40	54	ns
VAL	22.64	6.5			

Lo Instrumental = lower than or equal to the mean instrumental M score (26.94) for the total sample (N=236).

Figure 6



and VAS were identical with the only exception being no significant difference between VAC and VAL for the Lo instrumental women in the Non-traditional Group.

In sum, then, Hi-instrumental women in the Traditional program and Lo-instrumental women in the Traditional as well as the Non-traditional programs were similar to each other with respect to their value-attainment expectations through most life-roles. Hi-instrumental women in the Non-traditional programs, in contrast, viewed their work-role as higher than all other life-roles, in its value-attainment potential. The similarities and differences among the four sub-groups can be clearly seen in Figure 6, page 116.

Sex-role attitudes and Performance in Training programs

A post-hoc hypothesis complementary to research hypothesis 7 was formed and tested:

Among trainees in Traditional Group 1 (Nursing), the less egalitarian Lo AWS women (those who scored equal to or less than the group mean = 27.3 of the total N = 257 on AWS) would have a higher GPA (MARKS) than the more egalitarian Hi AWS women (those who scored greater than the total group mean). In other words, it was expected that women with traditional (less egalitarian) sex-role attitudes would perform better in Traditional training programs (Nursing) than women with Non-traditional, egalitarian sex-role attitudes. Table 25, page 118 and Figure 7, page 119, show that there was no significant difference between the Lo AWS and the Hi AWS women in their mean score on MARKS or GPA ($t=-0.28$, $df = 104$, ns).

Table 25

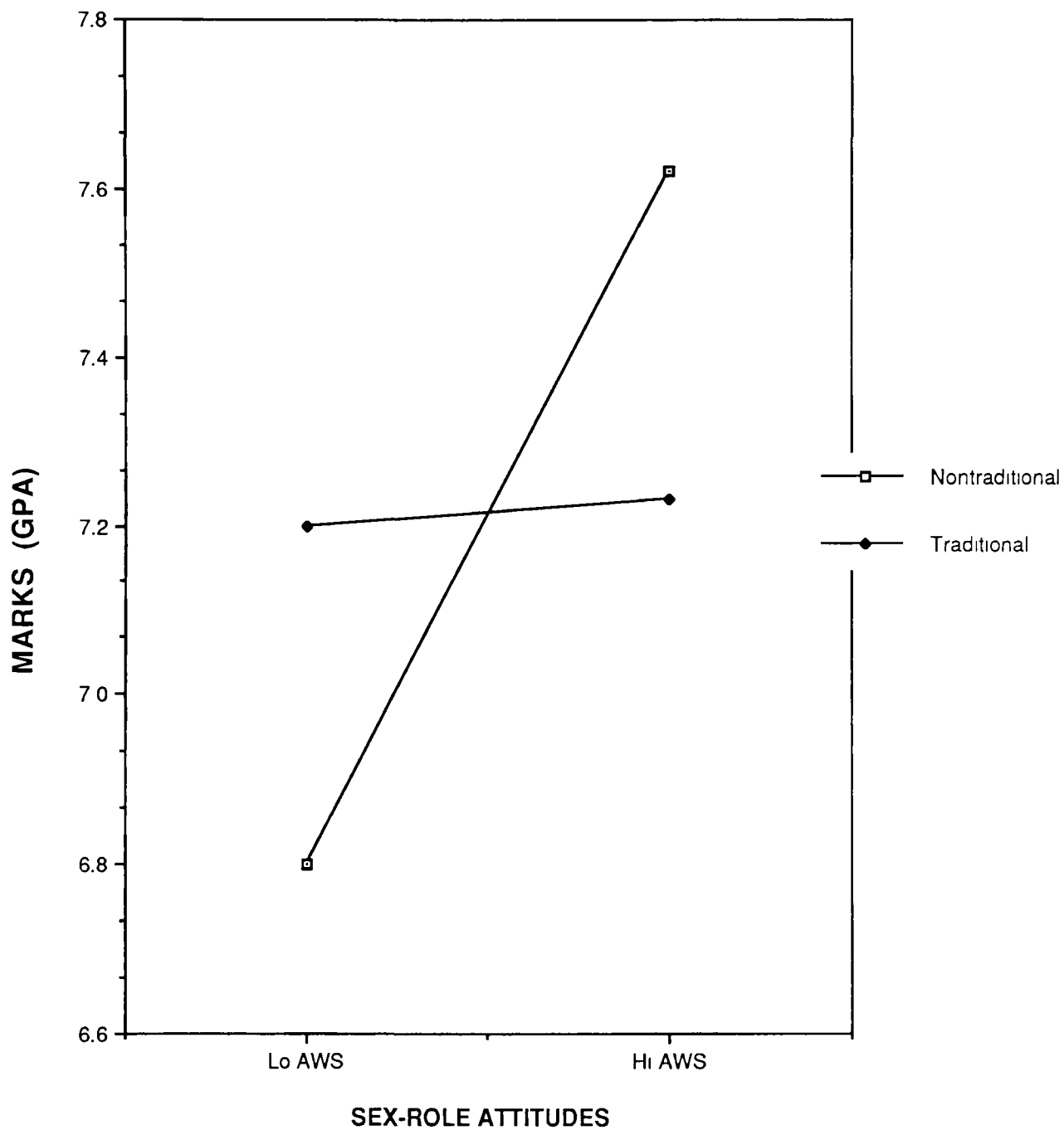
Supplementary T-test between the Hi AWS vs. Lo AWS
(non-traditional vs. traditional sex-role attitudes)
women in the Traditional (Nursing) Group 1
on MARKS (GPA)

Lo AWS		Hi AWS		t-value	df	2-tail p
<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>			
7.20	0.59	7.23	0.57	-0.28	104	0.780

Only the women in the Traditional (Nursing) Group 1 between AWS High (higher than the mean AWS score the Traditional Group 1 = 25.2) and Low AWS (lower than or equal to 25.2).

Figure 7

Performance (GPA) of Hi AWS and Lo AWS
Women In Traditional vs. Nontraditional
Training Programs



Discriminant Analyses

The research hypotheses presented on pages 33 to 35 investigated the association of 1) sex-role attitudes, 2) instrumental-expressive traits, 3) values, 4) value-attainment expectations through various life-roles, 5) perceived peer expectations, and 6) perceived difficulties in pursuing a non-traditional career, with women's participation in the Traditional (Nursing) vs. Non-traditional (Trades & Technology) programs. Supplementary Discriminant analyses (Table 27) were carried out to examine the relative interactive contribution of these variables plus a few potentially significant demographic variables (see Table 26, page 121) in statistically discriminating the trainees in the Traditional (Nursing) Group from the trainees in the Non-traditional Group.

In addition, the present study also had an interest in the relationship of the major dependent variables with the trainees' scholastic performance in their chosen training programs. Therefore, a Discriminant Analysis (Table 28) was performed to find out the relative contribution of each of these variables (Table 26) in discriminating between Hi-GPA (greater than group mean for MARKS = 7.2) vs. Lo-GPA (lower than or equal to 7.2) women within the Traditional (Nursing) Group. A similar Discriminant Analysis (Table 29) was done to discriminate between the Hi-GPA (greater than the group mean for MARKS = 7.2) vs. Lo-GPA women in the Non-traditional (Trades & Technology) Group.

In order to identify which of the dependent variables (potential discriminants) possessed the greatest discriminating power, stepwise Discriminant Analyses were conducted.

Table 26

Variables used in the Supplementary Discriminant
Analyses with their Definitions

AWS	Sex-role attitudes (Attitudes toward Women Scale)
INSM	Instrumental Attributes (PAQ)
EXPF	Expressive attributes (PAQ)
ALT	Altruism - (The Values Scale)
AUTH	Authority - (The Values Scale)
CRE	Creativity - (The Values Scale)
SOCI	Social Interaction - (The Values Scale)
SORE	Social Relations - (The Values Scale)
RISK	Risk - (The Values Scale)
VAS	Value-attainment expectations through student-role (Role Values Grid)
VAW	Value-attainment expectations through work-role (Role Values Grid)
VAF	Value-attainment expectations through family-role (Role Values Grid)
VAC	Value-attainment expectations through citizen-role (Role Values Grid)
VAL	Value-attainment expectations through leisure-role (Role Values Grid)
B95	Socio-economic status
B113	Mother's level of education
MAW	Mother's attitude toward women's educational/occupational achievement
FAW	Father's attitude toward women's educational/occupational achievement
PERDIF (C36)	Perceived difficulties toward a non-traditional career
TOTTRAD	Traditionality of peers' sex-role attitudes (Peers' Expectations Scale)
MARKS	Grade Point Average

Discriminant Analyses between Traditional (Nursing) and the Non-traditional (Trades & Technology) Groups

The dependent variables entered in the first Discriminant Analysis between the Traditional Group 1 and the Non-traditional Group 2 were: AWS, INSM, EXPF, SOCI , SORE, AUTH, CRE, RISK, VAS, VAW, VAF, VAC, VAL, TOTTRAD, PERDIF, B95, B113, MAW, and FAW. Table 26, page 121 reports the variable names, and their definitions. The results of Discriminant Analysis (A) presented in Table 27, page 123 indicate that the Discriminant Function was highly significant in discriminating the two principal Groups (Traditional Nursing and Non-traditional Trades & Technology) of trainees, with a correct classification rate of 82.53% per cent and a canonical correlation, R_c of .69.

A randomly selected 50% of the total sample was used for cross-validation of the above Discriminant variables in another Discriminant Analysis (B in Table 27). Significant cross-validated discriminant variables were the importance given to the values Altruism, Authority, Creativity, Social Interaction, then VAC (Value-attainment expectations through citizen role), and SES (B95). Correctly classified cases were now 75.65% of all cases, the canonical correlation R_c associated with the Function was .78. Rho coefficients between the two sets of the standardized discriminant coefficients in these two Discriminant Functions was .76, $p < .05$.

The results of a Multiple Regression Analysis to predict group membership by using the cross-validated discriminating variables as predictors are presented in Table 28, page 124. Consistent with the Discriminant Function, the importance of three values, Altruism, Creativity, and Social Interaction accounted for a significant

Table 27

Discriminant Analyses between the Traditional (Nursing) Group 1
and the Non-traditional (Trades & Technology) Group 2

A. Total Sample (N=229)

B. Randomly selected 50% per cent of the Total Sample (N=96)

	R_c	Wilk's lambda	χ^2	df	Significance	% Correctly classified
A.	.69	.518	116.8	11	.0001	82.53
B.	.78	.393	84.2	8	.0001	75.65

Standardized Canonical Discriminant
Function Coefficients

A. Total N

B. Random 50% of Total N

ALT	-.84	ALT	-.93
AUTH	-.15	AUTH	-.22
CRE	.54	CRE	.74
PISK	.29	SOCI	-.30
SOCI	-.27	SORE	.28
PEPDIF	.26	VAF	.25
VAC	.41	VAC	.45
VAL	-.15	B95	.19
B95	.21		
B113	-.14		
FAW	.24		

Spearman's Rho coefficient between Standardized Discriminant
Function Coefficients of A and B: .76, $p < .05$

Group centroids for A: Traditional Group 1 = -1.24, Non-
traditional Group 2 = .74

Group centroids for B: Traditional Group 1 = -1.55, Non-
traditional Group 2 = .97

Table 28

Stepwise Multiple Regression Analysis using the Cross-validated
Discriminants as Independent Variables,
and GROUP (Traditional vs. Non-traditional)
as the Dependent Variable

Independent Variables	Beta	T	df	Significance
ALT	-.53	-9.14		.0001
CRE	.27	5.60		.0001
SOCI	-.14	-2.37		.02
R ²	.43	F = 60.59	3,241	.0001

($p < .0001$) 43% per cent of the membership variance in the dependent variable GROUP.

Discriminant Analyses between Hi GPA and Lo GPA women in the Traditional (Nursing) Group 1

Discriminant analyses were also used to test for differences between women above the Grade Point Average and women below the Grade Point Average. The results for the Traditional (Nursing) Group 1 are presented in Table 29, page 126. The Grade Point Average was 7.2 for both the Traditional and the Non-traditional groups (Table 12, page 78).

A cross-validation procedure was used to check the stability of the results. Approximately 50% per cent of the sample was randomly selected for this second analysis. Cross-validated discriminant variables were Altruism, AWS, mother's level of education, SES, and VAL, discriminating the two GPA groups significantly ($p < .0008$). The Rho coefficient between the two sets of standardized discriminant function coefficients in the two Discriminant Analyses described above was .74, $p < .05$.

Discriminant Analyses between Hi GPA and Lo GPA women in the Non-traditional (Trades & Technology) Group 2

Discriminant analyses similar to the above were carried out for the trainees in the Trades and Technology programs. Table 30, page 127 reports the results. In the results of the cross-validated analysis, using a randomly selected 50% per cent of the Non-traditional Group 2, the five discriminant variables were; INSM, AWS, mother's level of

Table 29

Discriminant Analyses between Hi GPA and Lo GPA
within Traditional (Nursing and Nursing Assistance) Group 1

A. Total Sample of Traditional Group 1 (N=67)

B. Randomly selected 50% per cent of the Traditional Group 1 (N=39)

	R_c	Wilk's lambda	X^2	df	Significance	% Correctly classified
A.	.60	.64	27.7	7	.001	71.91
B.	.76	.42	28.55	9	.001	68.18

Standardized Canonical Discriminant
Function Co-efficients

A. Total N

ALT	.57
PISF	-.38
TOTTPAD	-.36
AWS	.40
VAL	-.72
B95	.37
B113	.51

B. Random 50% of total N

ALT	1.45
AUTH	.38
SOCI	-.75
VAW	-.32
AWS	1.13
VAL	-.89
B95	.43
B113	.44
MAW	.48

Hi GPA = higher than or equal to 7.2; Lo GPA = lower than 7.2
(group mean of MAPKS)

Spearman's Rho coefficient between Standardized Discriminant
Function Coefficients of A and B: .74, $p < .05$

Group centroids for A: Hi GPA = .69, Lo GPA = -.80

Group centroids for B: Hi GPA = 1.06, Lo GPA = -1.25

Table 30

Discriminant Analyses between Hi GPA and Lo GPA within
Non-traditional (Trades & Technology) Group 2

- A. Total Sample of Non-traditional Group 2 (N=110)
B. Randomly selected 50% per cent of the Non-traditional Group 2 (N=62)

	P_c	Wilk's lambda	χ^2	df	Significance	% Correctly classified
A.	.56	.69	38.7	11	.001	71.67
B.	.63	.60	28.9	6	.001	61.54

Standardized Canonical Discriminant
Function Coefficients

A. Total N		B. Random 50% of total N	
INSM	.60	INSM	.76
EXPF	-.47	ALT	-.30
ALT	-.24	VAW	-.56
CRE	.48	TOTTRAD	.30
RISK	-.64	AWS	.61
SOCI	.35	B113	.55
VAW	-.23		
PERDIF	.36		
AWS	.56		
VAL	.27		
B113	.27		

Hi GPA = higher than or equal to 7.2, Lo GPA = lower than 7.2 (group mean of MARKS)

Spearman's Rho coefficient between Standardized Discriminant Function Coefficients of A and B: .73, $p < .05$

Group centroids for A: Hi GPA = .51, Lo GPA = -.89

Group centroids for B: Hi GPA = .62, Lo GPA = -1.05

education, VAW, and ALT. The Rho coefficient between the two sets of standardized discriminant coefficients in these two analyses (the initial and its cross-validation) was .73, $p < .05$.

Multiple Regressions Analyses on MARKS (GPA)

Two separate Multiple Regression Analyses were done: one, to predict GPA-group membership (mean split on Grade Point Average GPA or MARKS) within the Traditional (Nursing) Group 1 only (Table 31, page 129), and the other, to predict GPA-group membership within the Non-traditional (Trades & Technology) Group 2 only (Table 32, page 130). In the first of these two analyses the cross-validated discriminant variables between Hi and Lo GPA students in the Traditional (Nursing) Group, as reported in Table 29, were used as potential predictor variables. Similarly, in the second Multiple Regression Analysis the cross-validated discriminant variables from the Discriminant Analysis between Hi and Lo GPA students in the Non-traditional (Trades & Technology) Group, as presented in Table 30, were used as potential predictor variables.

Interestingly, in both the Traditional (Nursing) and the Non-traditional (Trades & Technology) Groups, only AWS entered the Regression equations, with a Beta value of .27, significant at $p < .01$ level in the first analysis (Traditional Group) and a Beta value of .39, significant at $p < .001$ level in the second analysis (Non-traditional group). Thus, from this potential set of variables, only the women's attitudes towards the rights and roles of women and men in society predicted above vs. below average scholastic performance in both traditional (Nursing) and non-traditional (Trades and Technology)

Table 31

Stepwise Multiple Regression Analyses
using the Cross-validated Discriminants as Independent Variables
and Hi- vs. Lo-GPA GROUP
as the Dependent Variable
TRADITIONAL (Nursing and Nursing Assistance) Group only

Independent Variables	Beta	T	df	Significance
AWS	.27	2.75		.007
R ²	.07	F = 7.56	1,99	.007

Hi GPA = higher than or equal to 7.2; Lo GPA = lower than 7.2 (group mean of MARKS)

Table 32

Stepwise Multiple Regression Analyses
using the Cross-validated Discriminants as Independent Variables
and Hi- vs. Lo-GPA GROUP as the Dependent Variable
NON-TRADITIONAL (Trades & Technology) Group only)

Independent Variables	Beta	T	df	Significance
AWS	.39	4.75		.001
R ²	.15	F = 22.51	1,128	.001

Hi GPA = higher than or equal to 7.2; Lo GPA = lower than 7.2 (group mean of MARKS)

training programs.

Factor Structure of Discriminant Variables

A Factor Analysis (Table 33) of the cross-validated variables from the Discriminant Function Analyses between the two principal Groups, Traditional and Non-traditional, was done to determine the common underlying structure, if any, among these diverse variables. The factor analysis followed the other statistical analyses, so that all variables would already have been documented as significantly associated with the women's participation in the Traditional vs. Non-traditional programs. Three factors emerged from the varimax rotation. An examination of Table 33, page 132 reveals that the first factor had the highest loadings on the variables VAL (.76), VAC (.70), and VAW (.64). Since the emphasis here was on the life-roles as potential vehicles for value-fulfilment, it could be labelled as the Value-attainment via life-roles dimension. In the second factor, the variables with the highest loadings were the importance of the values Altruism (.83) and Social Interaction (.69). Since both of these values are of the expressive or communal kind, the second factor could best be described as the Expressive value dimension. Finally, the last factor had the highest loadings on the importance of the values Creativity (.83), and Authority (.78). The predominant feature of this factor was, thus, instrumental values. Therefore, it appeared logical to name the third factor as the Instrumental value dimension.

The empirical evidence reviewed on pages 6 to 8, and also on pages 27 and 28, suggested that stereotypically, certain values were associated with masculinity or instrumental traits, and certain other

Table 33

Factor Analysis
of Intercorrelations Among Major Discriminating Variables
between the Traditional Group 1
and the Non-traditional Group 2

(N=229)

Rotated Factor Matrix:

	Factor 1	Factor 2	Factor 3
	Value attainment via life-roles	Expressive Values	Instrumental Values
VAL	.76		
VAC	.70		
VAW	.64		.33
SOCI	.37	.69	
ALT		.83	
B95		-.55	
CRE			.83
AUTH			.78

values seemed to be related with femininity or expressive traits. The labelling of the second and the third factors mentioned above as Expressive and Instrumental value dimensions respectively reflect this perceived association widely documented in psychological research. At the same time it must be acknowledged that the naming of factors is a largely subjective task. The names of these factors could be overly and prematurely convergent with certain theoretical views.

A Summary of the results of Supplementary Analyses

1) In the Non-traditional Group (Trades and Technology programs) the frequency of Hi AWS (egalitarian) women was significantly higher than the frequency of Lo AWS (less egalitarian) women.

2) There was a greater number of Hi AWS (egalitarian) in the Non-traditional (Trades and Technology) Group than in the Traditional (Nursing) Group.

3) The Hi instrumental women in the Non-traditional (Trades and Technology) programs expected to attain their values through their work-role more than through their other life-roles. By contrast, the Hi instrumental women in the Traditional program as well as the Lo instrumental women in both Traditional (Nursing) and Non-traditional (Trades and Technology) programs expected to attain their values equally through their work-role and family-role more than through either their student-, leisure-, or citizen-role.

4) In the Traditional (Nursing) Group, there was no significant difference between the Hi AWS (egalitarian) and Lo AWS (less

egalitarian) women in their mean score on MARKS or GPA.

5) The cross-validated variables which significantly discriminated the women in the Traditional (Nursing) vs. the Non-traditional (Trades and Technology) Groups were: the importance of the values Altruism, Authority, Creativity and Social Interaction, the variables VAC (Value-attainment expectations through the citizen-role) and SES.

6) The importance of the three values, Altruism, Creativity, and Social Interaction accounted for a significant (43%) proportion of the variance in the dependent variable GROUP (Nursing vs. Trades and Technology) in a Multiple Regression Analysis.

7) The cross-validated variables which significantly discriminated the Hi GPA vs. Lo GPA women in the Traditional (Nursing) Group were: Altruism, AWS, mother's level of education, SES, and VAL (value-attainment expectations through leisure-role).

8) The cross-validated variables which significantly discriminated the Hi GPA vs. Lo GPA women in the Non-traditional (Trades and Technology) Group were: INSM, AWS, mother's level of education, VAW (value-attainment expectations through work-role), and Altruism.

9) In both the Multiple Regression Analyses to predict GPA-group membership (Hi GPA vs. Lo GPA) in the Traditional (Nursing) and then, in the Non-traditional (Trades and Technology) programs, only AWS entered the regression equations, accounting for 7% of the variance in the dependent variable in the Traditional (Nursing) program, and 15% of the variance in the dependent variable in the Non-traditional (Trades

and Technology) programs.

10) Three factors emerged as the result of a Factor Analysis of the cross-validated discriminants for discriminating women in the Traditional (Nursing) vs. Non-traditional (Trades and Technology) Groups. These were labelled: i) value-attainment via life-roles, ii) expressive value and iii) instrumental value dimensions, based on their factorial loadings.

CHAPTER IV

DISCUSSION

In this chapter, the purpose of the present study is restated. Then the results of the statistical tests of the research hypotheses and also the results of the supplementary analyses are discussed in the context of previous work in this area. Finally, the conclusions with their implications, and suggestions for future research are presented.

Re-statement of the Purpose of the Present Study

The main focus of this study was on women in non-traditional training programs. The reference point taken was their counterparts in more traditional (nursing/nursing assistance) programs. This study aimed at a simultaneous examination of some major personality and social psychological variables which on theoretical grounds, should be associated with the actual participation and accomplishment of women in traditional vs. non-traditional job-training / re-training programs. Specifically, 1) female students' sex-role attitudes, 2) instrumental-expressive personality traits, 3) personal values, 4) expectations for value-fulfilment through various life-roles, 5) perceptions of peers' attitudes toward women's roles, and finally, 6) their perceptions of barriers and opportunities in pursuing a non-traditional career were studied. The relationship of women's sex-role attitudes to their performance in the non-traditional (Trades and Technology) programs was also investigated.

Discussion of the Results: Research Hypotheses

Sex-role Attitudes

Hypothesis 1. Sex-role attitudes will be significantly more traditional among those training for traditionally feminine occupations (Nursing and Nursing Assistance) than among those training for non-traditional feminine occupations (Computer Engineering, etc., as listed in Table 1).

The results of the test of the first hypothesis (Table 9, page 75) regarding sex-role attitudes were consistent with the reviewed literature (e.g., Zuckerman, 1981; Valentine et al., 1975; Orcutt & Walsh, 1979; Lyson & Brown, 1982; Crawford, 1978). As hypothesized, it was found that women in the non-traditional occupational training programs expressed significantly more egalitarian sex-role attitudes than women in the traditional occupational training programs. In comparison, women in traditional training programs expressed significantly more traditional sex-role attitudes. These findings would reflect the concept of "sex-role congruence" as discussed by Kalin and Hodgins (1984). The sex-role congruency model, originally proposed by Arvey (1979), states that often a belief in the sex-typicalness of a job affects evaluation of potential male vs. female candidates for a given position, so that men are evaluated negatively for feminine-typed jobs, and women are evaluated negatively for masculine-typed jobs. Kalin and Hodgins reviewed a number of studies and concluded that sex-role congruence seemed to be an important factor in judgments of occupational suitability, supporting Arvey's argument.

The differential participation of egalitarian women in Non-traditional programs and of more traditional women in Traditional programs might have been a consequence of these women feeling "more

at home" in these programs respectively. In other words, the women with traditional sex-role attitudes might have considered traditional occupational areas as more appropriate for females, and therefore, more suitable for themselves. The women with more egalitarian sex-role attitudes, however, might have considered "non-traditional" occupational areas as equally appropriate in view of their own conceptions of what women's and men's roles should/could be.

The present data clearly suggested that there was an association between these respondents' attitudes toward women's and men's rights and roles in society, and their own personal participation in traditional vs. non-traditional training programs. To elaborate, the majority of women who were training for non-traditional occupations tended to believe that women should have equal rights and similar economic, social, and legal status in the society as do men. This egalitarian attitude would have enabled them to view training and working in occupational areas where most of their peers were men, as an appropriate and acceptable career path for themselves as women.

Women in the traditional training programs, in contrast, held more traditional sex-role attitudes, and by implication, believed that men and women could or should not have the same rights and responsibilities in the socio-economic system. As a consequence, they considered traditional occupations more suitable for themselves. Previous studies (e.g., Valentine et al., 1975; Lyson & Brown, 1982; Zuckerman, 1981) indicated that these convictions could be due to an implicit belief in women's inherent superiority in certain areas (e.g., nurturing), or a similar belief in men's inherent superiority in certain other respects (e.g., in intellect or creativity). Research by Lillydahl (1986) has shown, for example, that some of the

reasons given by women for not wanting a non-traditional job were: reluctance to compete for jobs with male breadwinners, inappropriateness of traditionally male-dominated jobs for women, and undesirable working conditions. All of these reasons reflected traditional sex-role attitudes parallel to those assessed in the AWS.

Nagely (1971) and Crawford (1978) (pages 12 and 13) provided evidence that indeed women expressing wider and more egalitarian sex-role attitudes were more likely to participate in non-traditional occupational / educational areas than women having more traditional sex-role attitudes. These latter women who had stereotypical views of sex-roles, tended to consider non-traditional occupational domains incompatible with their "feminine" self-concepts, and consequently, judged non-traditional careers as personally unacceptable work-roles.

It seems that for women with traditional sex-role attitudes, the concept of "femininity", and perhaps, even self-esteem tied with their feminine identity, necessitate engaging in role-activities which have been traditionally assigned to women, and more importantly, not engaging in unfeminine "masculine" role-activities, in areas where mostly males have traditionally worked. For women having more egalitarian sex-role attitudes, on the other hand, participating in activities which require autonomy, courage, or risk, for example, seem to pose no threat to their "femininity", just because the majority of their co-workers happen to be men.

These present findings are also consistent with a second theoretical viewpoint presented by Eagly et al. (1984), who sought to explain the pervasiveness of occupational stereotypes in terms of the

observed frequencies of males vs. females in different social roles. Since there is, at present, a much greater proportion of males than females in certain occupations, these occupations are viewed as appropriate for males and inappropriate for females. Thus, there appears to be an implicit inference from a "descriptive" to a "prescriptive" view. Women who believe that the rights and roles of men and women in society could/should not be similar, would be more likely than those who have more egalitarian sex-role attitudes, to judge the sex-appropriateness of occupational areas by the traditional stereotypic standards and prefer to maintain the status quo. In comparison, women with egalitarian views who are not bound by such traditional sex-role conceptions would not shy away from striving for changes in the present situation, especially if it means a change from a non-egalitarian to a more egalitarian way of life.

Another theoretical perspective is that of Mischel (1970), and Rosenthal and Zimmerman (1978), who have reviewed much empirical evidence and argued that not only behaviour, but a whole repertoire of social attitudes and values may also be acquired by observational/social learning. These attitudes and behaviour include one's conceptions of sex-role norms, of vocational aspirations, of leisure interests and so on. Furthermore, according to Tajfel's (1974) theory of social categorization, people tend to categorize their social environment into various categories, and to place themselves as well as others in a given category. This category-membership then forms a basis for their self-concept and self-evaluation by social comparison. The theory also maintains that via social comparison people enhance their positive self-evaluation by acquiring positively valued group-characteristics. Thus, the need

for self-evaluation, especially where there is no direct physical standard, anchors one to one's comparative "reference group".

It would follow from the theoretical positions mentioned above that women who have traditional sex-role attitudes would have acquired these via social learning processes from traditional reference groups which they would also use for self-evaluation. Theoretically, it would be likely for them to maintain and enhance their positive self-evaluation by following these learned sex-role norms, and not to deviate from these standards by participating in a non-traditional role. Similarly, women who have more egalitarian sex-role attitudes would compare and evaluate themselves in terms of reference groups which hold egalitarian sex-role attitudes. For them non-traditional vocational training would not constitute a deviance from their group-norm, and it would not affect their self-evaluation negatively.

Data obtained in examining Hypothesis 4 provided support for the above line of reasoning. The women taking traditional vocational training (Nursing) indeed perceived their peers' sex-role attitudes as traditional, while those in the non-traditional training programs (Trades and Technology) perceived their peers as having more egalitarian sex-role attitudes. In this instance, attitudes might be viewed as serving a socio-expressive (Herek, 1986) or "social adjustive" (Snyder & DeBono, 1987) function, and would be associated with a need to be accepted by the persons an individual considers important in her/his life. From this functional theoretical perspective, these attitudes are useful means towards such interpersonal goals, such as attainment of social support, enhancement of self-esteem, or reduction of anxiety.

Instrumental-Expressive Personality Traits

Hypothesis 2a). The number of women who describe themselves in terms of instrumental rather than expressive characteristics will be significantly greater among women training for non-traditional occupations than among women training for traditional occupations.

2b) The reverse will be true with respect to expressive characteristics.

Data supported the expectation that there would be more Hi Instrumental-Low Expressive women in the non-traditional programs than in the traditional programs (hypothesis 2a) (Table 14, page 83). This finding indicated that stereotype-related traits (Shinar, 1975; Lifschitz, 1983) might be a potential factor in the choice of non-traditional occupations among women. Both Shinar (1975) and Lifschitz (1983) reported that there was a consistent perceived relationship between certain occupations and certain instrumental or expressive traits among young men and women.

In Shinar's study, male and female college students were asked to rank a number of occupations as masculine, feminine, or neutral either on the basis of the perceived proportion of men and women employed in each occupation, or on the basis of perceived gender-related attributes associated with each occupation. The results provided evidence for clearly defined sex-stereotypes of occupations: certain occupations were indeed seen as more "masculine"/"feminine" than others. In general, Lifschitz's findings supported the existence of occupational stereotypes among high school students, in that both hypothetical men and women in certain occupations were seen as possessing certain traits to a greater extent than men and women in other occupations. For example, doctors were rated as more ambitious than nurses, and lawyers were rated as more intelligent

than secretaries.

The results of the present study showed that women who ascribed more instrumental than expressive traits to themselves, tended to participate more in non-traditional (Trades and Technology) programs. Assuming that more instrumental rather than expressive traits are stereotypically associated with masculinity, these findings seemed to be consistent with the notion of trait related occupational stereotypes documented by Shinar and Lifschitz.

The complementary hypothesis 2b predicting a greater number of Hi Expressive-Lo Instrumental women in the traditional rather than in the non-traditional programs was not confirmed (Table 14, page 83), although the direction of the differential distribution was as expected.

Two alternative explanations might be suggested for these findings. Firstly, while there might well be a strong association between the perceived role-demands of a traditional nursing career and expressive traits, nonetheless, perhaps job success in any field, Traditional - Nursing included, necessitates instrumental attributes as well. It would be difficult to perform successfully as a nurse/teacher without being assertive, persevering, independent, autonomous: traits which are instrumental (PAQ). This interpretation is consistent with the fact that in the Traditional (Nursing) Group as well as in the Non-traditional (Trades and Technology) Group, people's MARKS (Grade Point Average) significantly correlated with INSM (Instrumental traits). The Pearson r between MARKS and INSM was .18 ($p < .05$) for women in the Traditional Group, and .23 ($p < .01$) for women in the Non-traditional Group. It was also found that the number of Hi INSM-Hi EXPF women in the Traditional

(29) vs. in the Non-traditional (38) Group was not significantly different (page 67) from each other ($X^2 = .60$, $df = 1$, not significant). These results were somewhat similar to the findings of Yanico et al. (1978) who noted that there were more women in Engineering than in Home Economics who had high masculinity (BSRI) scores but there were approximately the same number of androgynous (Hi Masculinity-Hi Femininity) women in these two majors.

Hanson et al., (1980) noted a similar bias towards instrumental attributes for both traditional and non-traditional (for women) occupational roles. They conducted five experimental studies involving an evaluation of hypothetical candidates described as masculine, feminine, or androgynous, using personality traits from the BSRI. The results indicated that candidates described in stereotypical masculine traits were preferred for traditionally masculine jobs. But even for traditionally feminine jobs, candidates described as androgynous and masculine were chosen by the subjects more often than candidates depicted in stereotypically feminine traits only.

Alternatively, it is also possible that people's sex-role attitudes (Hypothesis 1) played a more prominent part in women's occupational beliefs and behaviour than self-ascription of instrumental or expressive traits. This latter possibility is based on the fact that usually gender is one of the most salient aspects of our social identity. Sex-role attitudes, which prescribe behaviours, clothing, and careers as gender-appropriate or inappropriate (as per AWS Scale content), may have a greater likelihood of influencing one's major decisions than instrumental/expressive traits, which may be far less dominant in one's conscious consideration of career-

options. This argument is parallel to the notion of "cognitive availability" as a judgmental heuristic advanced by Tversky and Kahneman (1982). In the present context, it is possible that greater salience of sex-role attitudes for participation in traditional vs. non-traditional vocational training could have made these attitudes more readily available to these women in a vocational behaviour context, than their self-perception in terms of instrumental/expressive personality traits.

Results obtained by Orlofsky and Stake (1981) have similarly indicated that psychological masculinity and femininity (PAQ) were not good predictors of role-related behaviour. In fact, Spence and Helmreich (1978) cautioned that "knowledge of the degree to which an individual possesses or manifests masculine [instrumental] or feminine [expressive] personality characteristics does not necessarily permit inferences about how sex-typed the individual is in any other category or role-related behaviour" (p.14). Deaux (1984) has expressed a similar view. This line of reasoning is also consistent with the observation of Feather and Said (1983) whose research showed that occupational preference was associated with both gender and instrumental/expressive traits, but that the relationship between occupational preference and gender was much stronger than that between occupational preference and instrumental/expressive traits. Presumably, this latter relationship was weaker in comparison, as it was based upon the extent to which the specific occupational activities were perceived to demand instrumental vs. expressive traits.

From a third perspective the non-significant results of the chi-square analysis for testing hypothesis 2b might have been due to

insufficient statistical power to detect a small effect size (.05), in a field study as the present one (Table 34, page 147). An examination of the data presented in Table 14 against Cohen's (1969) power tables for X^2 showed that with $N=57$ (total number of Lo INSM-Hi EXPF women), the power of the analysis used for detecting a small effect ($=.05$) at $p<.05$ significance level was only .40. In other words, the power of the test to reject a false null hypothesis was less than 50% per cent, thus, leaving the issue unresolved at present.

Differential Value Priorities Across Women in Traditional vs. Non-traditional Programs

Hypothesis 3ai) As compared with women in non-traditional training areas, women in traditional training areas will score higher in the importance attached to traditionally feminine values such as Aesthetics, Altruism, Social Interaction, and Social Relations.

Hypothesis 3bi) Women in non-traditional training areas, as compared with women in traditional training areas will rate the values Authority, Autonomy, Creativity, Physical Activity, and Risk as more important.

There was a partial confirmation for hypotheses 3ai and 3bi (Table 15, page 86). The data provided some support for the suggestion offered by previous researchers (e.g., Feather, 1984; Kingdon and Sedlacek, 1982; Young, 1984) that women in traditional vs. non-traditional occupational areas might indeed hold distinctive values priorities. In this study, it was found that while some differential instrumental vs. expressive values did emerge, several other instrumental and expressive values were given equivalent priority by women students in both Traditional and Non-traditional

TABLE 34

Statistical Power Analyses of Tests Associated with
Unconfirmed Predictions (2b, 3a1, 3b1, 6)

Hypothesis	Test	n	effect size	df	approximate power
2b.	χ^2	57	.05	1	.40
3a1. AES	Manova	125,144	.11	1	.36
3b1. AUTH	Manova	125,144	.12	1	.37
3b1. PHY	Manova	125,144	.19	1	.90
3b1. RISK	Manova	125,144	.11	1	.36
6a.	t	109	.57	109	.87
6b.	t	134	.57	134	.93

Job domains.

It has already been mentioned (pages 27 to 28) that the priorities given to the values Aesthetics, Altruism, Social Interaction, and Social Relations have been associated in the literature with expressive, communal characteristics that were seen as more typical of women than men. The importance of these values was, therefore, hypothesized as greater for women in traditional training programs. By contrast, the values Authority, Autonomy, Creativity, Physical Activity and Risk have been associated in the literature with instrumental, agentic characteristics — stereotypically ascribed to men as opposed to women. The importance of these values were, therefore, expected as greater for women in non-traditional training programs which hypothetically would place greater demands in these areas.

The results (Table 15, page 86) indicated that consistent with expectations, the women in the Traditional Group did rate the values Altruism, Social Interaction and Social Relations as more important than did the women in the Non-traditional Group. Similarly, the women in the Non-traditional Group attached more importance to the values Autonomy and Creativity than did the women in the Traditional Group.

Kingdon and Sedlacek (1982) reported that the female university students who stated their first occupational choice as nurse, elementary school teacher, medical technician, or nutritionist, considered working with people as the most important factor in making these choices. Thus, the chosen occupations seemed to have a value expressive function for these students. The majority of female work-force participants tend to work in similar people-oriented

occupations such as clerical (79.7% female), medicine and health (78.2% female), service (49.1% female), sales (34.6% female), and teaching (60.7% female)(Labour Canada, 1986-7). Therefore, it seems reasonable to believe that the values Social Interaction and Social Relations would be considered as important factors by most people working in those areas. The finding with respect to Altruism too, seems to have generalizability beyond the present sample. In the present study, the women in the traditional group were trainees in the nursing and nursing assistant programs, leading to an occupation which undoubtedly demand helping behaviour, and interacting and relating with people. Similarly, Altruism appears to be an important value for women who work as social workers, school psychologists, rehabilitational counselors, or animal caretakers - mostly traditional occupations for women.

The women in the non-traditional programs rated two of the five non-traditional values, Autonomy and Creativity as more important than did the women in the traditional programs. These findings with respect to value-differences were quite consistent with the reviewed literature (e.g., Feather, 1984; Young, 1984; Shinar, 1975; Strange & Rea, 1983; Lifschitz, 1983), and added considerable supportive evidence to work outside a job training/re-training context.

The lack of hypothesized significant differences between the two Groups in differential importance ascribed the values Aesthetics, Authority, Physical Exercise, and Risk could mean several things. First, within the organizational structure of hospitals, for example, and even among nurses there must be a hierarchy of authority, status, and power. It is logical that having little/no authority for making decisions would be a frustrating experience for nurses. Therefore,

nurses may consider Authority as essential to their work, in spite of its being a stereotypically non-traditional value.

Secondly, it could mean that the presumed association between traditional vs. the non-traditional training programs and these value priorities have undergone significant changes during the last decade. For example, most of the trainees in the Nursing/Nursing assistance programs in the present study were born in the mid-sixties. So, they would have been more exposed to the feminist movement and as a result, would have desired to have greater Authority than did similar trainees a decade earlier. In fact, using a time-series analysis, Florentine (1988) documented such a change in women's values over the period of 1969 to 1984, during which about a quarter of a million U.S. college students were surveyed each year. The data indicated that there was a dramatic increase in the percentage of women (from 13% in 1971 to 41% in 1984) who considered important such "non-traditional" values as "being well off financially", "having administrative responsibility", "obtaining recognition from colleagues", and "becoming an authority in one's field". A change in the opposite direction regarding "traditional" values was also noted but the decrease was modest. In 1969, 75% per cent of the female students indicated "helping others in difficulty" was important, as compared to 70% per cent of the female cohort in 1984. A similar decrease (from 78% in 1969 to 69% in 1984) was found with respect to a value "raising a family", which, interestingly, had dipped even lower (65% per cent) in 1975.

Similar interpretations were suggested by Beutell and Brenner (1986) for their findings that female M.B.A. students ranked values like independence, a feeling of accomplishment, use of knowledge and

skills, and intellectual stimulation as very high. In fact, a feeling of accomplishment was ranked first by both male and female M.B.A. students, and both groups ranked earn a high income the second. The male students, contrary to expectations, indicated preferences for leisure and security. Although the M.B.A. program is still a somewhat non-traditional program for women in 1988, according to these investigators, the unexpected pattern of value-rankings of the male and female students seemed to indicate the emergence of a more egalitarian value-orientation. Another recent study (Neil & Snizek, 1987) which used a much larger sample of 7100 employees in an Australian government organization, similarly reported finding no significant sex-differences in the importance attached to the usefulness of functions and social aspects of the job. However, both studies reported finding some sex-differences in values consistent with the stereotypical conceptions. For example, in the study done by Beutell and Brenner, women ranked the values comfortable work environment, and congenial associates higher than men, and men, on the other hand, ranked values like advancement and responsibility higher than women did. In the Australian study, males assigned greater importance than females to the values salary, job status, and prestige, and females, rather than males, attached greater importance to good personal relationships.

Thirdly, another alternative interpretation is based on the fact that the traditional trainees in the present study were primarily from the area of nursing - student nurses and nursing assistants. This could be responsible for the lack of differences between the two Groups, Traditional (Nursing/Nursing Assistance) and Non-traditional (Trades and Technology), with respect to the value Physical Activity.

While many other traditionally female jobs (e.g., clerical, dietitian) are characterized by sedentary or light physical work (e.g., sales positions), Nursing/Nursing Assistance is a more physically demanding job than the job of a computer-science technologist, or of a technological writer, or of a broadcaster. Also, the value Aesthetics, in retrospect, does not seem to be specifically any more characteristic of Nursing/Nursing Assistance program than, for example, of architectural technology (a non-traditional program). In addition, Table 34, page 147 shows that for the values Aesthetics, Authority and Risk, the statistical power to detect a small size effect (.11 to .12) at $p < .05$ level of significance was less than .50 in the present study. Therefore, it might be possible to resolve these discrepancies between the predictions and the results obtained in the present study by future research utilizing a larger number of trainees from a wider variety of traditional as well as non-traditional programs.

Lastly, it should be noted that The Values Scale is a context-free measure of personal values. But values may be differentially important to people in their various major life-roles. Personal values are much wider, and have broader applicability across all life-roles than work-values. Although out of the five items for assessing each value at least two relate to work values, and at least two others relate to values in general (page 45) , the instructions to the respondent are quite general, leaving the respondent the opportunity to respond to each item from the perspective of any life-role. This could lead to a confound across participants.

As many of the subjects in the present study took the questionnaires home to fill them out at their own leisure, it is

possible that they might have answered at least some of the items from their "family-role" viewpoint, rather than from the perspective of "student/worker" role. If this reasoning is correct, it would seem that significant differences in value-priorities might be obtained between women in Traditional vs. Non-traditional vocational areas when values are specifically linked to these women's future work-role through its potential value-expressive or value-attainment function. The results associated with hypotheses 3a11 and 3b11, where the respondent was asked to indicate what opportunities she saw now or in the future to attain a specific value through her work-role, lend support to the above reasoning. Once context of value-importance was specified and limited to work-role, the value-priorities of women in Traditional vs. Non-traditional job-training became quite distinct. Instrumental vs. Expressive values identified from studies using men vs. women, now did have differential importance for Traditional vs. Non-traditional female job-trainees.

Differential Value-attainment Expectations through Work-Role

Hypothesis 3a11) As compared with women in non-traditional training areas, women in traditional training areas will expect more to attain the values Aesthetics, Altruism, Social Interaction, and Social Relations through their work-role.

Hypothesis 3b11) Women in non-traditional training areas, as compared with women in traditional training areas will expect more to attain the values Authority, Autonomy, Creativity, Physical Activity, and Risk through their work-role.

The results pertaining to the expectations for attaining the values Altruism, Social Interaction, Autonomy, and Risk provided

substantial support (Table 16, page 90) for hypotheses 3a11 and 3b11. As predicted, the women in the traditional programs expected more to attain the values Altruism and Social Interaction through their work-role, and the women in the non-traditional programs expected more to attain the values Autonomy and Risk through their work-role.

From one perspective, these findings seemed to suggest the existence of occupational stereotypes in the sense of a general consensus regarding an association about a specific occupation and the kind of qualities it requires, or the kind of opportunities it provides for the fulfilment of a value. This perceived association could very well be based on a 'kernel-of-truth' (Eagly & Steffen, 1984) as, for example, the commonly-assumed association between Ambulance/Emergency Care/High Rise Welding Work, and the value Risk. Eagly and Steffen maintain that occupational stereotypes stem from observations of people with some specific qualities in certain specific social roles (page 4).

It is interesting to note that the importance of the value Risk was not distinctive across women in Traditional vs. Non-traditional training programs. But now in a more precise, more limited domain, in a more job-related context there is a clearer indication that the same value when specifically linked to one's work-role is differentially important across women in Traditional (Nursing) vs. Non-traditional (Trades and Technology) Groups. It may well be in this context that occupational expectations/stereotypes do come into play.

When global assessment was done in testing hypotheses 3a1 and 3b1, overall value priorities of women in Traditional vs. Non-traditional programs were distinctive in the expected direction in five out of nine

contrasts. Possibly after 5 to 10 years of job experience the contrasts would become crisper, but not necessarily so, as people's jobs might not be the salient reference focus for their self-actualization and satisfaction. Responses could still come on the basis of their experiences in the other role-domains. It seems appropriate to speculate that the impact of values in occupational/family/leisure/citizen roles only becomes clear when values are assessed in the context of the specific life-roles. Global assessment in the hope that respondents will set priorities that confer incentive strength to job characteristics seems an unrealistic expectation, as a blurred aggregate of all role-perspectives may well emerge.

Interaction of Instrumental Traits with Value Attainment Expectations for Work vs. other Life-roles

Hypothesis 6. Women scoring high on instrumental traits, as compared with women low on instrumental traits, will have higher value expectation scores for work-role and student-role (as a preparation for work-role), in comparison with other life-roles.

A number of investigators have reported that work-role was more important than family-role for women in non-traditional occupations (e.g., Nagely, 1971; Galejs & King, 1983; Peng & Jaffe, 1979). Yanico (1981) observed significant differences in the proportion of non-traditional occupational daydreams among the four groups of women - masculine, feminine, androgynous and undifferentiated (BSRI) with 'masculine' women scoring the highest. She reported a similar difference in the salience of career vs. family roles between the Hi

AWS (egalitarian sex-role attitudes) and the Lo AWS (less egalitarian sex-role attitudes) women, with Hi AWS women showing greater career-salience than the Lo AWS women. In addition, Feather and Said (1983) found a negative correlation between the PAQ-M (instrumental traits) score and the perceived likelihood of leaving work for the sake of domestic and parental duties among female high school students (N=77). It was hypothesized, therefore, that value-attainment expectations through work-role and student-role (as a preparation for work-role) would be significantly greater than the value-attainment expectations through family, citizen, and leisure roles among Hi-instrumental (Hi PAQ-M) women. The reasoning being that people with more instrumental traits would be more likely to be people for whom work and career would be more appropriate routes through which their work-oriented values (pages 27-28) can be expressed or attained. For Lo-instrumental (Lo PAQ-M) women this difference was not expected to be significant.

No significant differences (Table 17, page 94) were found between, on one hand, a combined score of the value-attainment expectations through student and work-roles (ZD1), and on the other, a combined score of value-attainment expectations through family, citizen, and leisure roles (ZD2), for either Hi-instrumental or Lo-instrumental women.

A consultation of Cohen's (1969) statistical power tables for T-tests revealed that for the obtained effect size ($d=.57$) in the first contrast (Table 34, page 147) with $N=109$, the power at the significance level $p<.05$, was .87, and in the second contrast (Table 34, page 147) with $n=134$, it was .93. In other words, the power of the tests was sufficient to detect the actually obtained effect.

An alternative explanation for the lack of predicted differences might take into account the fact that the respondents in the present study were students, not employees. As such they have not yet experienced the differential greater positive value-fulfilment from a work-role. However, as students, they had experienced value-fulfilment from their other life-roles: as family-member, as citizen, and as leisurite. Due to their lack of full-time job experience, these respondents did not perceive the differential value-satisfaction of work vs. other life-roles. Since they had to make inferences regarding value-attainment expectations through work-role without the requisite work experiences, their uncertainty was reflected in the above non-significant contrasts. These contrasts were quite sensitive, having approximately 90% statistical power. Future research would do well to test for value attainment expectations across life roles for people with at least several years' work experience.

Finally, a more likely explanation is that the hypothesis itself might have been imprecise. The supplementary T-tests (Tables 21, 22, 23, and 24, pages 107 to 110 and 112 to 115) showed that within the Traditional (Nursing) Group there were no differences between Hi-instrumental (Table 21, pages 107 and 108) and Lo-instrumental (Table 22, pages 109 and 110) women in their value-attainment expectations through life-roles. The Hi-instrumental women in the Non-traditional (Trades and Technology) Group (Table 23, pages 112 and 113), however, did indeed have higher expectations to attain their values through their work-role more than through any other life-role (family, student, citizen, or leisure), in comparison with both Hi-instrumental and Lo-instrumental women in the Traditional programs as well as in comparison

with Lo-instrumental women in the Non-traditional programs (Table 24, pages 114 and 115).

Value-attainment expectations through family-role (VAF) and value-attainment expectations through work-role (VAW) were ranked as equal by all subgroups (Hi-instrumental women in Traditional Group and Lo-instrumental women in both Traditional and Non-traditional Groups) except Hi-instrumental women in Non-traditional programs. Thus, as a potential vehicle for value-attainment, work-role and family-role were seen as similar, and student-role was viewed as less important than work-role and family-role by the majority of the respondents. The Hi-instrumental women in Non-traditional Group, by contrast, expected to attain their values most of all through their work-role, next, equally through student-role and family-role, next, through leisure-role, and lastly, through their citizen-role.

It seems, therefore, that at least two of the factors responsible for the lack of support for hypothesis 6 might have been due to an imprecise theoretical conceptualization which resulted in: i) joining student-role and work-role together into the same category, against the other category consisting of three roles, family, citizen, and leisure; and ii) pooling all the Hi-instrumental women of both Traditional (Nursing) and Non-traditional (Trades and Technology) programs together for a comparison with all the Lo-instrumental women of both Traditional and Non-traditional programs. As the data presented in Tables 21, 22, 23, and 24 showed, there was a difference in the priority of work-role only as compared with other life-roles between Hi-instrumental and Lo-instrumental women in Non-traditional (Trades and Technology) programs, but not in the Traditional (Nursing) programs. Thus, a more precisely

stated hypothesis might have helped in getting a clearer picture.

Perceived Peer-Expectations of Women in the Traditional vs. Non-traditional Training Programs

Hypothesis 4. Women in non-traditional training areas, as compared with women in traditional training areas, are more likely to perceive the sex-role attitudes of their peers as more flexible and liberal.

It was hypothesized that women in the Non-traditional programs would perceive their peers' expectations regarding women's and men's roles and rights as significantly more egalitarian than women in the Traditional programs. Table 10, page 76 indicates that the hypothesis was substantiated by the results. Previous research (e.g., Weishaar et al., 1981; Wilson et al., 1982; Tangri, 1975; Altman & Grossman, 1977; Etaugh, 1984) has documented the important social learning influence of parents, teachers, and peers on women's vocational behaviour. While the parents are the primary socializing agents (Wilson, et al, 1982; Tangri, 1975; Standley & Soule, 1974), during school years teachers often become significant people in one's life (Lunneborg, 1982; Weishaar et al., 1981), and during adolescence and young adulthood peers are found to be the most important reference group (Huston-Stein and Higgins-Treuk, 1978; Katz, 1979; Hartup, 1976; Houser & Garvey, 1985).

Houser and Garvey (1983, 1985), for example, have reported similar findings. In their research, students who were enrolled in non-traditional programs (N = 246) were compared to students enrolled in traditional programs (N = 224), including those who had considered but

did not enroll into non-traditional programs (N = 117). The first group of students differed significantly from the other two groups in receiving more support from their family-members and friends - some of whom were in non-traditional programs themselves. The second group of students, on the contrary, reported receiving discouragement from their friends with regard to entering non-traditional programs.

The major socializing influence of the peers in imparting essential information regarding social norms, and also as a reference-group for social validation of one's cognitions and behaviour, has already been discussed in relation with the results of hypothesis 1 (pages 140 and 141). Peers not only act as role-models (Houser and Garvey, 1983, 1985), but also provide positive reinforcement in the form of much needed social support at this crucial phase of vocational development. Such reinforcement would appear to be particularly valuable in women's pursuit of non-traditional careers.

Another possible mechanism involved in the respondents' perceived similarity between their own and their peers' sex-role attitudes might be based on the "similarity-attraction" principle, amply documented by Byrne and his co-workers (Byrne et al., 1986). A number of studies (e.g., Byrne and Blaylock, 1963; Byrne and Wong, 1962, Byrne, 1971) have corroborated Byrne's proposition that individuals who like each other, such as the peers in this study, perceive themselves as similar, accurately or sometimes inaccurately.

In sum, the data obtained in the present study were consistent with the available empirical evidence, and demonstrated that there was a significant relationship between women's participation in traditional vs. non-traditional training programs, and the extent to which they

perceived their peers to have egalitarian attitudes toward women's place in society.

Perceived Barriers in Pursuing a Non-traditional Career

Hypothesis 5. Women in non-traditional training areas, as compared with women in traditional areas, are expected to perceive less difficulties and more opportunities for pursuing a non-traditional occupational role.

Researchers such as Lillydahl (1986) and Thomas (1980) have noted that women were reluctant to enter non-traditional jobs due to a variety of perceived difficulties for women in pursuing a non-traditional occupational role. The reasons given by respondents for not wanting a non-traditional job ranged from the inappropriateness of such jobs for women, disapproval of family and friends, undesirable working hours and conditions, social isolation and depression, to sexual discrimination and harassment. Accordingly, the present study examined the prediction that trainees in the traditional programs would report greater perceived difficulties for women pursuing a non-traditional career than the trainees actually in the non-traditional programs. It was theorized that trainees actually in the non-traditional areas had chosen these programs because they did not anticipate overwhelming difficulties which could stem from perceptions of sex-role incongruence or the disapproval of traditional peers.

However, data in Table 11, page 77 revealed that contrary to expectations, the women who were actually participating in non-traditional training programs reported greater perceived difficulties than did the other women who had participated in the Traditional

training programs. This finding suggests that the participants in the Non-traditional groups may have responded to the item with greater concern from an external, realistic, and structural point of view, rather than from their own psychological (i.e., a sex-role congruence) point of view. The women in the traditional programs, not having such personal concerns may well consider such areas as not overly difficult for other women in general to work in.

Results of several studies would be consistent with such an interpretation. Stringer and Duncan (1985), for example, found that women actually employed in non-traditional areas most often mentioned lack of adequate training and of previous exposure as a barrier, while the second most frequently-mentioned barrier was discrimination.

McIlwee (1982) investigated women's work satisfaction / dissatisfaction in blue-collar non-traditional occupations, and noted that acquiring job-skills, increasing self-confidence and coping with troublesome co-workers were some of the major concerns of these employees (N=86) at the entry level. Keenan et al. (1985) provided evidence of the fact that indeed women in more prestigious, white-collar jobs share some of these same problems. These authors noted, that while fulfilment of work needs (opportunities to extend abilities and to apply technical knowledge etc.) explained over half of the variance in their job satisfaction, stereotyped attitudes of their colleagues and superiors were the strongest predictor of their job-related anxiety.

In addition, another theoretical principle, a "belief in a just world" (Lerner et al., 1975) might be operating. This principle posits that all people essentially believe in the idea of justice, and in its

corollary, that everyone does / should get what he/she deserves. Theoretically, this also implies that individuals tend to use their internal frames of reference to weigh the justness or fairness of their own and others' expectations, behaviour, and experiences. In the present context, it would appear plausible, that for women in the Traditional programs, this "belief in a just world" was never seriously put to the test of frustrating vocational experiences, and therefore, they might continue to believe that there were no major barriers against pursuing any career (traditional/non-traditional) a woman would choose. Many women in the Non-traditional programs, on the other hand, probably have had to face the brunt of gender-discrimination and occupational sex-stereotypes (Kanter, 1977), during the course of their training process in courses where women constituted a disproportionate minority.

A parallel notion features in a social norm - the "norm of equity" (Walster et al., 1978), which encompasses within its rubric cognitions of deserving, expectations of fairness, social comparison and relative deprivation (Crosby, 1982; Keith & Schafer, 1987). To elaborate, it is posited that individuals require some frame of reference for the cognitive appraisal of what they deserve, and of the fairness of what they receive. Social comparison is the most frequently used assessment device for this purpose, and it is the perception of relative deprivation in relation to a reference group that is viewed as inequity. In the present context, the female trainees in the Non-traditional vocational training programs might have compared themselves either with the female trainees in the Traditional vocational training, or with the male co-trainees in the Non-traditional programs. In

either case, the members of the reference group, (female nurses or male Trades and Technology students) are viewed as having an easier time than do the women in Non-traditional programs, prompting perceptions of relative deprivation and inequity. As compared with these other trainees, women in the Non-traditional programs, therefore, perceive having to face a great many additional barriers through no fault of their own. As Jacobs (1987) observed on the basis of her female police officer subjects' responses, "The situation of female officers is sometimes blamed on the conservative, or 'stubborn' attitude of the male officers" (p.5).

It seems, therefore, that while the women in the Non-traditional programs were in a sex-role congruent situation by virtue of their own more egalitarian sex-role attitudes, their perceptions of greater barriers in pursuing a non-traditional career might have stemmed from the ignorance, prejudice, discrimination and frequently, from the lack of adequate facilities for women in these Non-traditional training programs. The test-results of hypothesis 6 appeared to reflect this negative feedback received from their institutional experiences.

From the perspective of the theory of Cognitive Dissonance (Festinger, 1957), these findings may indicate that women in the Non-traditional programs expected to feel quite "at home" in these training areas, which were "sex-role congruent" according to their own egalitarian sex-role definitions. However, their feelings of isolation and "token" status (Kanter, 1977) might have caused them to feel disappointment and discomfort. To reduce the resulting dissonance, they might have added consonant elements, namely "I am feeling unhappy, because despite gains women have made, there are greater barriers in

pursuing a non-traditional career [than in pursuing a traditional career]".

Sex-role Attitudes and Women's Performance (MARKS) in Non-traditional Programs

Hypothesis 7. Women with more egalitarian attitudes toward women's roles will perform better (Higher GPA) in non-traditional training programs than will women with traditional sex-role attitudes.

Table 18, page 97 shows significant results of women's attitudes on scholastic achievement which lend support to this hypothesis. The importance of egalitarian sex-role attitudes was doubly demonstrated not only as a correlate of women's participation in non-traditional training programs (hypothesis 1), but as a significant variable associated with above average performance in these programs as well (Hypothesis 7).

It was argued in presenting the theoretical rationale (page 29), that sex-role attitudes (and instrumental/expressive traits) may be construed as filtering mechanisms that selectively eliminate sex-role incongruent options as inappropriate, and allow certain other options as appropriate routes for women's value-attainment. Empirical evidence with regard to sex-role attitudes (pages 12-17) suggested that women with traditional sex-role attitudes were likely to find non-traditional work-role more incongruent with their self-concept as feminine (Kalin & Hodgins, 1984). Non-traditional work-roles, as a consequence, would not appear to them as appropriate and desirable routes for women to use in attaining their values.

By contrast, women with more egalitarian sex-role attitudes, by

virtue of their much wider conception of sex-role, were not as likely to be constrained by such a negative outlook towards non-traditional occupations. They would be more likely than the women with traditional sex-role attitudes to feel comfortable in the non-traditional settings. It would be more natural for them, therefore, to expend more effort and to be more motivated to perform well in the non-traditional programs, as these would prepare them for non-traditional occupational roles and eventually, for their value-attainment, through these roles. Thus, from the two basic premises of the motivational potential of non-traditional occupational roles as suitable vehicles for value-attainment, and a wider range of perceived options for women with more egalitarian sex-role attitudes, it seemed logical to expect that the women with more egalitarian sex-role attitudes would perform better in non-traditional programs than the women who had more traditional sex-role attitudes.

Indirectly, Orcutt and Walsh (1979) have provided support for such a contention. On the basis of observed differences between women aspiring for traditional vs. non-traditional occupations on sex-role attitudes, the authors concluded that women with non-traditional sex-role attitudes had greater confidence in their abilities to compete in a non-traditional occupational area than women with traditional sex-role attitudes.

It is interesting to note that Yanico et al. (1981) formulated and tested a parallel hypothesis with regard to an association between psychological masculinity, femininity, and androgyny (BSRI), and women's persistence in their originally chosen traditional vs. non-traditional majors. They had argued that 'masculine' women would find

traditionally feminine major (Home Economics) incongruent with their sex-role self-concept, just as 'feminine' women would find a non-traditional major (Engineering) incongruent with their sex-role self-concept. Thus, in both cases, these women would be less likely to persist in their study-programs. They based their argument on i) Super's (1963) self-concept theory which maintains that vocational development is an implementation of one's self-concept, ii) Festinger's (1966) Dissonance theory, and iii) the assumption that sex-role identity (as assessed by the BSRI) is an important aspect of one's self-concept. There was no support found for their hypothesis.

Unfortunately, the statistical power associated with testing these hypotheses were not reported by Yanico et al. One of the distinctive features between the Yanico et al. study and the present study concerns the use of the BSRI focusing on masculinity, femininity and androgyny in the former, vs. the use of the Attitudes toward Women Scale (AWS) and the PAQ in the present project, utilizing a much wider assessment of women's sex-role conceptions. Not only are these instruments (PAQ and AWS) characterized by greater simplicity of scoring procedure and stronger theoretical rationale, but are also considered to be relatively free from methodological problems (Kelly & Worell, 1977; Orlofsky, 1981; Pedhazur & Tetenbaum, 1979). Moreover, it is possible that sex-role attitudes have greater applicability and salience to people with respect to their vocational behaviour than more vague and diffuse instrumental vs. expressive traits. This reasoning is based on the fact that sex-role is associated with gender, a highly salient aspect of social identity, while personality traits are usually not so obvious.

The confirmation of the hypothesized relationship between non-traditional sex-role attitudes and women's performance in the non-traditional programs obtained in the present study has special significance in the context of the lack of significant results in the study by Yanico et al. (1981). It seemed to imply once again that sex-role attitudes were likely to have a greater influence on women's vocational behaviour than instrumental or expressive personality traits, as discussed on page 144 in relation with the results of hypothesis 2.

The notion of "sex-role congruency" and Super's self-concept theory would also suggest that training program-content and activities involved in Traditional vs. Non-traditional training areas may provide women having traditional vs. egalitarian sex-role attitudes with differential opportunities to implement their self-concept as women. It can be expected that engaging in Traditional vocational training programs would be more consistent behaviourally with the normative implications of traditional sex-role attitudes. Similarly, for a more egalitarian woman, the opportunities to actually participate in behaviours stereotypically limited to men only, may considerably enhance her self-esteem as an individual, as she does not believe in double standards of behaviour, of status, or of roles based on gender. Such a tendency for individuals to be consistent across their cognitions, affect, and behaviour has occupied a pivotal position in many social psychological theories (Heider, 1946; Festinger, 1957; Rosenberg & Abelson, 1960).

Specifically, Herek (1986) has noted that when attitudes stem from a need to affirm an individual's sense of self and are associated with

values integral to his/her self-concept, they serve a "value-expressive" function. There is a stronger tendency to justify/implement such value-expressive attitudes through appropriate behaviour (Kristiansen & Zanna, in press).

A somewhat similar notion of "Person-Environment fit" has been discussed by Caplan (1987) in relation with occupational stress and organizational effectiveness. Two principal kinds of person-environment fit have been proposed:

i) needs-supplies fit, or the fit between the individual worker's needs and the specific job's resources for meeting those needs, and

ii) demands-abilities fit, or the fit between the job's demands and the individual worker's abilities to meet those demands. A poor person-environment fit is considered to be stressful and to affect performance negatively.

By implication, it would seem that women having more egalitarian sex-role attitudes performed better in the Non-traditional training programs than did women with less egalitarian sex-role attitudes, because, these more egalitarian attitudes served a special value-expressive function for the former group of women, who experienced a better "person-environment fit". It would follow, then, that these women with more egalitarian sex-role attitudes were more strongly motivated to perform well, to justify their beliefs in gender-equality, and having a conducive environment, expended greater efforts accordingly.

Discussion of Supplementary Findings

Sex-role Attitudes and Membership in the Traditional vs. Non-traditional Groups

The results presented in Table 19, page 102, and Figure 5, page 103, demonstrated that the frequency of traditional (Lo AWS) women and egalitarian (Hi AWS) women were almost equal in the Traditional (Nursing) programs, but there was a significantly greater number of egalitarian women (Hi AWS) vs. traditional (Lo AWS) women in the Non-traditional (Trades & Technology) programs. These findings suggest that sex-role attitudes were more crucial in choosing a non-traditional training area than a traditionally female training area. Choice of a traditional occupational training area probably did not require a great deal of deliberation regarding sex-role attitudes because nursing has always been seen as a suitable vehicle for women's value-fulfilment anyway. These women (nursing/nursing assistance trainees) were not venturing into an unfamiliar territory. The women aspiring for non-traditional occupations, on the other hand, were required to justify their choices (to themselves and others) by carefully weighing the (stereotypical) external demands of a non-traditional occupational role with the internal demands of their self-concept (instrumental per Hypothesis 2 and yet feminine). A prominent consideration would likely have been their more egalitarian attitudes toward women's and men's roles and responsibilities in society. They probably reasoned somewhat like the following:

"For this work, I am as competent as a man, and I believe that men and women should have an equal opportunity to do any job they are qualified for. Therefore I am just as able to become an Electronics Engineer/Ambulance driver as a man can, provided I have the appropriate training."

Sex-role Attitudes and Performance in the Traditional Programs

Table 25, page 118, and Figure 7, page 119, revealed that there was no significant relationship between traditional sex-role attitudes and women's GPA (MARKS) in the traditional programs. This finding, consistent with the results discussed above, seemed to suggest that traditional sex-role attitudes were not as important for the motivation to do well in the traditional nursing programs as more egalitarian sex-role attitudes were for doing well in the non-traditional Trades and Technology programs. The reason could be that although Nursing, like domestic duties, has always been seen as a "legitimate" area for women, performing well in any vocational training probably requires some non-traditional (egalitarian) sex-role attitudes. For example, in view of the vastly advanced medical technology today, intelligent and responsible student-nurses would be likely to endorse AWS items such as the following:

B142: "Women should take increasing responsibility for leadership in solving the intellectual and social problems of the day."

Discriminant Analyses between Hi GPA vs. Lo GPA Sub-groups in the Traditional and Non-traditional Programs

The cross-validated standardized canonical discriminant function coefficients (Table 29, page 126) indicated that the most powerful discriminating variables between the high-performers and the low-performers in the Traditional Nursing programs were 1) the importance of the value Altruism (Association with Hi GPA), 2) egalitarian sex-role attitudes (associated with Hi GPA), and 3) Value-attainment

expectations through leisure-role (associated with Lo GPA). Since the participants in the Traditional Group were trainees in the nursing and nursing assistant programs, it would be hardly surprising to find that Altruism was an important correlate for good patient-care performance. Lo GPA students' expectations for value-attainment through leisure-role could be explained in terms of their realization that, perhaps unlike their more successful class-mates, they might not have the ability or the energy to attain their values through the work- or student-nursing roles. It was interesting to see that even in the traditional programs, more egalitarian sex-role attitudes were associated with better performance in the Discriminant Function. In fact, the importance of Altruism and sex-role attitudes were found to have very similar discriminating power (cross-validated coefficients for ALT and AWS were 1.45 and 1.13 respectively. However, as no significant difference between the less egalitarian Lo AWS women and egalitarian Hi AWS women in the Traditional (Nursing) program was found as a result of the univariate T-test on MARKS (GPA) (Table 25, page 118), the above finding (of Discriminant Analysis) should be considered tentative at present.

The observed relationship between egalitarian sex-role attitudes and better academic performance is compatible with the results obtained in a number of studies. Foss and Stanley (1986), for instance, found that although the Hi AWS women did not differ from the Moderate or Lo AWS women in the traditionality of occupations most desired for themselves, they had scored significantly higher on the vocational Self-efficacy Scale than the others. According to these authors, this finding indicated that the Hi AWS women felt they had the abilities,

and confidence in their abilities to complete their education, and to perform their occupational duties well - in their desired fields, whether Traditional or Non-traditional. Canter (1979) has reported a significant positive correlation between egalitarian attitudes and women's educational and occupational aspirations. Higher educational goals and a greater preference for career-involvement were found to correlate highly with egalitarian sex-role attitudes (AWS) in yet another study (Zuckerman, 1981). On the basis of these findings, it seems appropriate to conclude that more egalitarian sex-role attitudes are frequently conducive to better educational performance in women in both traditional and non-traditional domains.

The discriminant function also revealed that, consistent with previous empirical evidence (e.g., Hoffman, 1979; Tangri, 1972; Carney & Morgan, 1981; Zuckerman, 1981; Sandberg et al., 1987), mother's level of education, (B113) and SES (B95) significantly discriminated between the Hi GPA and the Lo GPA trainees. The coefficients for B113 were .51 and .44, and coefficients for B95 (SES) were .37 and .43 in analyses A and B respectively. These results could be better understood as compared with the results of the Discriminant Analyses performed between the Hi GPA and Lo GPA sub-groups in the Non-traditional programs as interesting similarities and differences between the two principal Groups (Nursing vs. Trades-Technology) emerged.

The results for women in the Non-traditional programs can be seen in Table 30, page 127. The most powerful discriminants were instrumental traits, sex-role attitudes, value-attainment through work-role and mother's level of education (B113). The standardized canonical discriminant coefficients (.76 for instrumental traits, .61

for AWS, and .55 for mother's level of education, and -.56 for VAW) indicate that instrumental traits, more egalitarian sex-role attitudes and having more educated mothers were likely to facilitate performance in the non-traditional programs. On the contrary, focusing on one's work-role while participating in the student-role might have some distracting influence on academic performance.

A comparison of Discriminant functions of the two groups, Traditional vs. Non-traditional, in terms of better or poor performance shows that there are some similarities, as well as some differences between the two. Non-traditional sex-role attitudes, and mother's level of education seemed to relate positively with good performance in both the Traditional and the Non-traditional training programs. Low performers may feel that getting a job would give them better opportunities to have what they want - since with below average marks, studying was not likely to be an enjoyable role-activity anyway. The Lo GPA Non-traditional students may have specially felt that the work-role was their only avenue for value-fulfilment, as many of them came from lower income families (34% less than \$20,000 plus another 34% less than \$40,000, total annual family income).

In the Traditional group, the importance of the value Altruism (expressive/communal), was associated with Hi GPA. By contrast, in the Non-traditional group, instrumental traits related positively, while the value Altruism and expressive traits related negatively to getting good marks in the courses. The opposite findings in the two training groups with respect to Altruism and expressive traits are of interest, from the point of view of congruency between one's personality characteristics and the motivation to perform well in a training area.

The women who perceived themselves to have more expressive traits, and who placed more importance on the value Altruism - a communal value, might have felt the Non-traditional training programs as incongruent with their self-concept.

Multiple Regression Analyses to Predict GPA-group Membership

Two separate Multiple Regression Analyses were carried out to determine the predictive power of the cross-validated discriminant variables to predict membership in Hi vs. Lo GPA sub-groups in the Traditional, and the Non-traditional Groups (Tables 31 and 32, respectively, pages 129 and 130). The results showed that only AWS (sex-role attitudes) made a significant contribution ($p < .01$ in the Traditional group, and $p < .001$ in the Non-traditional group) in predicting GPA-group membership in both cases. The explained variance in the dependent variable, GPA-group membership, was 7% per cent in the case of the women in the Traditional Group and 15% per cent in the case of women in the Non-traditional Group.

In view of the differential performance variance, 7% and 15%, accounted for by sex-role attitudes in the Traditional vs. the Non-traditional Group as shown by the data in Tables 31 and 32, it might be worthwhile to re-examine these results in the context of a study done by Lyson and Brown (1982). Those investigators found two factors reflecting the two different aspects of the attitudes assessed by the AWS: appropriate role and equality. The factor labelled appropriate role loaded on issues dealing with the primacy of work-role and family-role in women's lives, and the second factor, labelled equality, dealt with equal rights and opportunities for men and women. Among women in

both traditional (Home Economics) and non-traditional (Agriculture) majors, the appropriate role factor was significantly related to educational and occupational expectations. The equality factor, on the other hand, was related with educational and occupational expectations of only women in the Agriculture major. The authors concluded that since jobs in the area of Home Economics are predominantly held by women, Home Economics students were not particularly concerned about the issue of equal rights and opportunities.

It is possible that in the present study too, a similar lack of concern about equality among the women in the Traditional programs might have reduced the predictive power of sex-role attitudes for explaining the variance in academic performance in the dependent variable.

Discriminant Analyses between the Traditional vs. the Non-traditional Groups

The cross-validated Discriminant Function coefficients (Table 27, page 123) distinguishing between the Traditional vs. the Non-traditional group revealed that in the Traditional programs, women tended to attach greater importance to the values Altruism, Social Interaction, and Authority, and were more likely to come from higher socio-economic families. The women in the Non-traditional programs, on the other hand, tended to consider the values Creativity and Social Relations, as important in their lives, and expected to attain their values through the citizen-role. These women were also likely to perceive their father's attitudes toward women's educational/occupational achievement to be positive - consistent with the

literature (e.g., Lemkau, 1979; Lamb, 1981; Weishaar et al., 1981).

Multiple Regression Analysis to Predict Group-membership (Traditional vs. Non-traditional)

A stepwise Multiple Regression Analysis (reported in Table 28, page 124), using the cross-validated discriminant variables (from Table 27, page 123) as predictors and GROUP (Traditional vs. Non-traditional) as the dependent variable shows that values and vocational behaviour were linked. The values Altruism, Creativity, and Social Interaction explained a significant ($p < .001$) 43% per cent of the variance in the dependent variable, demonstrating support for the idea that occupational behaviour has a value-expressive function. Women who gave higher priority to the values of Altruism and being able to interact socially with others were found in occupational training domains (namely, nursing) which facilitated/expressed such value priorities.

Factor Analysis of the GROUP-Discriminants

The results of the Factor Analysis using the discriminant variables of the Traditional vs. the Non-traditional Group as the input variables, are presented in Table 33, page 132. The three factors which it yielded were consistent with the theoretical framework of the present study. The first factor had highest loadings on value-attainment expectations through life-roles and could be labelled as the value-fulfilment via life-roles dimension. The second factor reflected the importance of the communal values Altruism and Social Interaction and could be best described as the expressive value dimension, and

similarly, the third factor, loading highly on the importance of the agentic values Creativity and Authority, could be called the instrumental value dimension. The factor-structure, thus, essentially reproduced the major theoretical corner-stones of the present study. Other analyses (such as those in Tables 9, 31 and 32, pages 75, 129 and 130) however, already presented above, have demonstrated sex-role attitudes also to be a significant variable which influenced participation as well as performance in both traditional and non-traditional vocational training programs.

Summary, Conclusions and Implications, Limitations and Suggestions for Future Research

The central focus of this study was the beliefs, values, and experiences associated with women's participation in non-traditional training programs. Most of the findings suggested that women who participated in the traditional training programs did indeed differ from women in the non-traditional training programs: 1)in their values, 2)value-attainment expectations, 3)sex-role attitudes, 4)instrumental-expressive traits, 5)perceived peer expectations and 6)perceived difficulties for pursuing a non-traditional career.

Main Findings: A Priori Hypotheses

-Women in non-traditional training programs expressed more egalitarian sex-role attitudes than did women in traditional training programs, as suggested by a comparison of the mean AWS scores of the two groups.

-Women in the non-traditional group characterized themselves more in terms of High Instrumental and Low Expressive characteristics than did women in the Traditional group.

-Women in the traditional programs rated the values Altruism, Social Interaction and Social Relations as more important in their lives, and more women in the traditional program expected to attain the values Altruism and Social Interaction through their work-role. On the contrary, women in non-traditional programs rated the values Autonomy and Creativity as more important, and expected more to attain the values Autonomy and Risk through their work-role.

-The trainees in the traditional programs perceived their peers' attitudes towards women's roles as more traditional, than did the trainees in the non-traditional programs.

-The women actually in the non-traditional programs perceived greater difficulties in pursuing non-traditional work-roles than did the women outside non-traditional programs.

-Finally, among women in the non-traditional programs, egalitarian sex-role attitudes were associated with better academic performance.

Supplementary Findings: Post-hoc Analyses

-There were more Hi AWS (egalitarian) than Lo AWS (less egalitarian) women in the Non-traditional (Trades and Technology) programs.

-There were more Hi AWS (egalitarian) women in the Non-traditional (Trades and Technology) Group than in the Traditional (Nursing) Group.

-The Hi instrumental women in the Non-traditional (Trades and Technology) Group only, expected to attain their values more through their work-role than through any other life-role.

-The values Altruism, Creativity and Social Interaction explained a significant proportion of the variance in the dependent variable GROUP (Nursing vs. Trades and Technology) and together with Authority, VAC and SES significantly discriminated the women in the Traditional (Nursing) vs. those in the Non-traditional (Trades and Technology) programs.

-The variables which discriminated the Hi GPA vs. Lo GPA women in the Nursing program were: Altruism, AWS, mother's level of education, SES and value-attainment expectations through leisure-role.

-The variables which discriminated the Hi GPA vs. Lo GPA women in the Trades and Technology programs were: INSM, AWS, mother's level of education, value-attainment expectations through work-role and Altruism.

-In both Nursing and Trades and Technology programs, multiple regression analyses showed that of all the potential predictor variables only AWS (egalitarian sex-role attitudes) entered into the regression equation, explaining 7% of the variance in the dependent variable (GPA-group membership, or membership in a Hi GPA vs. Lo GPA sub-group) in the Traditional (Nursing) Group, and 15% of the variance in the dependent variable (GPA-group membership) in the Non-traditional (Trades and Technology) Group.

-A Factor Analysis of the cross-validated discriminants yielded three factors labelled: the value-attainment via life-roles, the expressive value and the instrumental value dimensions.

It is of special interest to note that the data highlighted the importance of egalitarian sex-role attitudes, of values, of life-roles as potential vehicles for value-attainment, and also, consistent with much empirical literature, of mother's level of education.

Conclusions and Implications

The findings concerning the cognitions and experiences of women

in Non-traditional vs. Traditional job-training programs suggested that women's pursuit of Traditional and Non-traditional jobs is related in a logical, predictable fashion to not only their value priorities, and value-attainment expectations through work-role, but also to their sex-role attitudes, their expressive-instrumental traits, and inferred sex-role attitudes of their peers.

In Super's (1963) view, vocational behaviour is a manifestation of self-actualization because an individual strives to fulfil her/his values through a combination of roles the most important of which, Super feels, is the occupational role. To the extent that values, self-ascribed instrumental-expressive characteristics, and sex-role attitudes reflect one's self-concept, the present findings have important implications for a theory of women's participation in traditional vs. non-traditional occupational roles. The present findings demonstrated empirical validation for Super's concept of value-expectancy through various life-roles, and contributed to our understanding of the value-correlates of people's vocational behaviour.

The current study also reflected the need for a fair level of measurement specificity as when overall value contrasts were made across women in Traditional vs. Non-traditional programs, irrespective of specific life-role, significant predicted contrasts emerged on only 5 out of 9 (56%) values (Table 15, page 86). However, this percentage jumped to 100% per cent of the predicted contrasts when participants were told to rate the importance of specified values in one specific life-role - that of their future work (Table 16, page 90). When values were appropriately assessed in the context of a specific life-role, evidence was also found for the

idea that women's vocational behaviour can serve a value-expressive function.

In addition, the present findings provided evidence of multiple associations between women's sex-role attitudes, their value priorities, their value-attainment expectations via work-role, perceived sex-role attitudes of peers, and their actual vocational training behaviour. Thus, the current study contributed by establishing theoretical linkages between Super's Self-concept theory and the sex-role literature.

The results can be seen as suggesting that sex-role attitudes may indeed mediate between women's values and the perceived range of occupational roles as potential routes to the attainment of these values. Thus, the mode of implementing a woman's self-concept - or, fulfilling her values, depended significantly on whether or not she held egalitarian or traditional sex-role attitudes. The results also pointed at the possibility that a woman's definition of "femininity vs. masculinity" in terms of instrumental and expressive traits also influences her vocational behaviour (e.g., participation in traditional vs. non-traditional job-training) in an important way.

For example, a woman may expect that success in a specific non-traditional job-area would demand certain instrumental traits. If she believes that it is possible for women to possess these instrumental traits without losing their "feminine" identity, she would then be more likely to determine whether she herself possesses these requisite instrumental traits. On the other hand, if she believes that instrumental traits are "masculine" and inappropriate for women, she would tend to foreclose consideration of that job-area without assessment that she herself might have these requisite

traits. Thus, the present study highlights the need to take women's sex-role attitudes into consideration so as to understand their vocational behaviour more adequately.

Interesting also was the impact of "actually being there", in a job-training program non-traditional for women. For, contrary to prediction, women actually training for non-traditional jobs rated the barriers to pursue such non-traditional jobs as greater and the opportunities fewer than did women who themselves were not training for such non-traditional jobs. This occurred despite the differential sex-role attitudes of these two groups of women. Potential non-traditional job-holders were more egalitarian in their outlook on rights/roles of women and men in society than were the women training to work in traditional domains. Yet, even so, they had far more concerns.

Clearly, the motivation to implement one's self-concept in a non-traditional work-role given their more egalitarian sex-role attitudes was not sufficient for these women to feel satisfied with the situation, as the structure of opportunities needs to be equitable. Caplan's (1987) recommendation that to attain a better person-environment fit, change in both person and environment need to be considered, echoes this view. Since the concept of 'vocational maturity' occupies a prominent place in Super's theory (Super & Overstreet, 1960), this finding should be especially noted. According to Super, vocational maturity involves "reality-testing", or a careful weighing of various career-options against one's own ability, interests, as well as the socio-economic opportunities.

The implications of this finding for women in occupational training/retraining for non-traditional jobs are that such trainees

and their male co-workers are in a sense pioneers, and need to be prepared for changes in workplace gender demographics. The costs of ignorance, prejudice and discrimination on the part of others (e.g., male co-trainees or teachers) seem to outweigh the potential benefits occurring from their personal satisfaction, given that these young women do have more egalitarian sex-role attitudes (Table 9, page 75) and more instrumental traits (Table 14, page 83).

The perceived barriers in pursuing non-traditional careers emphasize the need to recognize that the society's denigration of women in non-traditional job-domains is a promising target for long-overdue change. A large number of males - co-workers, supervisors, need to be repeatedly reminded of this as a basic human rights issue which violates elementary principles of justice and equity. Programs need to be developed to target males (peers of the egalitarian women) to the effect that since the gender demographics of the occupational world are changing, changes in their (males') attitudes are essential. Power-sharing is long overdue.

To recapitulate, from the perspective of a self-concept theory of women's vocational development, as well as that of sex-role congruency model, therefore, the results of the present study would imply:

a) self-ascription of instrumental/expressive traits are vocationally important aspects of women's self-concept;

b) sex-role attitudes may have a significant impact on the range of perceived options congruent with a woman's self-concept;

c) values are important personal goals, the attainment of which may be expected through the various major life-roles;

d) vocational behaviour has a value-expressive function;

e) a specific life-role may be seen as a vehicle for attainment of different values depending on women's participation in traditional vs. non-traditional training;

f) perceptions of peers' expectations and attitudes appeared to be related to women's participation in traditional vs. non-traditional occupational training programs, thereby underscoring the importance of social support, encouragement, modelling and social cognition heuristics;

g) the women in the Non-traditional programs reported greater perceived difficulties in pursuing a non-traditional career than did the women in the Traditional programs probably because of the non-traditional trainees' experiences in these real, non-traditional training situations. This finding seems to point at the perceived necessity of changes in their social environment, especially, the necessity of more social support for the non-traditional female trainees;

h) non-traditional sex-role attitudes were related to women's successful performance in the non-traditional training programs in particular, implying a motivational, filtering, and goal-directed aspect of these attitudes. The goal in this sense could mean "equity", "gender-equality", "attaining one's rightful place in the society", or "proving one's competence to oneself/others".

In sum, the results provided important empirical validation for the utility of theoretical constructs such as values, and value-attainment expectations through life-roles in the examination of vocational behaviour of women in non-traditional as compared to traditional areas of job training. Other variables, such as perceptions of peers' sex-role attitudes, and the perceived

difficulties in pursuing a non-traditional career, provided important indices of these women's subjective assessment of their social environment, and thus, are likely to be significant factors in their reality-testing.

From a counselling point of view, the findings would suggest the utility of the "value-confrontation" procedure used by Rokeach (1973). Rokeach argued that significant changes in values could be achieved by convincing individuals of an incompatibility between some of the values they held, and their behaviour. He also provided some empirical evidence supporting this view.

Limitations

The majority of research hypotheses in the present study have received confirmation by the data. The supplementary analyses also provided valuable additional information regarding the interrelationships among the major variables. Nevertheless, the generalizability of the results obtained are limited due to the specific nature of the student-sample, the correlational design of the present study, the use of a multiple-choice format in the questionnaire, and the lack of follow-up interviews.

Specifically, the findings of this study need to be strengthened by other replicative studies, with more heterogeneous and larger samples. As discussed on pages 149 and 151 to 152, some of the significant and non-significant results might have been due to the rather homogeneous nature of the Traditional Group, which consisted of nurses and nursing assistants only.

Failure to find expected results could have reflected

psychometric weakness in some cases, such as low internal consistency of some measures for the present sample. For example, the alpha coefficient for INSM (M Scale of the PAQ) was .55 in the present study, which might have affected the results of hypothesis 6 (instrumental traits and life roles). Similarly, for some of the statistical tests (3ai and 3bi), the statistical power in the current study was low (Table 34, page 147). Thus, replication with other instruments and larger heterogeneous samples would be especially useful to increase our confidence in the findings. The need for specificity in the measures was demonstrated by the data associated with hypotheses 3ai and 3bi (value priorities) on one hand, and those associated with hypotheses 3aii and 3bii (attaining values through work-role) on the other (pages 152 to 155). A similar need for specificity in generating a research hypothesis was noted with respect to hypothesis 6 (pages 157 and 158), where predictions related with each specific role might have been more illuminating.

The present study examined a small segment of women only. Inclusion of men in a similar study would shed light on other aspects of the situation, possibly revealing the internal dynamics of the social interaction processes which affect the cognitions, emotions, and behaviour of members of the male majority-group and the female minority-group in a non-traditional (for females) job-training situation.

The results of the current study are based on a sample of vocational trainees. We need to know whether the interrelationships among the research variables would be similar for women who are actually nurses and trades persons / technicians on the job. The inclusion of women holding non-traditional jobs would allow us to

assess their attitudes regarding the job and the physical and social environment based on their actual experience, in a work-setting, and not on their anticipations. In other words, the present findings need to be extended from the range of an educational-institution to the larger arena of occupational organizations.

Finally, the present study cannot suggest causality among the research variables, as the data-analytic procedures were primarily correlational. Application of path-analysis would be useful in building causal models for generating research hypotheses linking these variables within a causal network. The viability of these hypothesized causal relationships could then be examined through time-series analyses, longitudinal research, and other experimental/quasi-experimental procedures.

Suggestions for Future Research

The present study points out that more research is needed to clarify our understanding of the motivational aspects of the different variables examined. For example, it would be useful to investigate through experimental or quasi-experimental research, the extent self-ascription of instrumental/expressive traits, sex-role attitudes, the rated importance of values and value-attainment expectations through a life-role, enter into the conscious consideration and pursuit of career-options. Furthermore, from a structural symbolic interactionist perspective, self-concept is viewed as a hierarchical system of an individual's various role-identities (Gecas, 1982). The theory proposes that the values and

the norms associated with these identities motivate people to behave in accordance with the role-structures established by the society, and the greater the salience of an identity within the self-concept, the greater is its motivational impact (Stryker, 1968; Gordon, 1976). Studies by Jackson (1981) and Stryker and Serpe (1982) have provided empirical support for this view. Such an approach might be utilized in future research to examine the salience of sex-role identity as compared to the salience of other role-identities (worker, family-member, student, citizen or leisurite) among men vs. women, to find out more about the motivational significance of sex-role identity in vocational behaviour.

A comprehensive study of the social-behaviour dynamics in the organizational setting may benefit also from an examination of the sex-role attitudes of the wives of male workers in non-traditional domains. It may be that female spouses facilitate their husbands' gender discrimination at work on the premise that women in non-traditional occupations are rivals for their husbands' affection/attraction.

In addition, the study of vocational behaviour and of corresponding sex-role attitudes, instrumental-expressive traits, value-expectancy for various life-roles, perceived barriers and peer-expectations, reported by actual job-incumbents with 3-5 years of organizational socialization behind them in non-traditional vs. traditional domains is warranted. Research is also needed to find out to what extent perceptions of peers' expectations and attitudes accord with the actual expectations and attitudes of the peers as reported by themselves. Similar examination of perceived difficulties in pursuing a non-traditional career done through in-

depth interviews with the trainees, could yield valuable information regarding the perceived drawbacks of the present educational / organizational system and the possible remedies of these drawbacks.

Moreover, a focus needs to be placed on the social cognitions and affect of the male majority in areas non-traditional for women. As Greenglass (1982) succinctly expressed, "... certain jobs continue to be seen as belonging to men's domain, not because women are incapable of fulfilling the job requirements, but because many of these jobs exist in a social atmosphere somewhat similar to that of an exclusive men's club" (p.181). She also cautioned that "even if improved legislation changes hiring practices, it will not automatically eliminate social and economic discrimination" (p.192), until stereotypical sex-role attitudes change among both men and women.

Study of men's sex-role attitudes, flexibility, self-esteem, assimilation and contrast tendencies, and reactions to power-sharing and accommodation to greater diversity in the work-place seems long overdue. Such a focus would provide options for vocational training that would offer a much more conducive context for equal employment opportunities for men and women. These recommendations do not intend to suggest that non-traditional occupations are superior to traditional occupations, or vice versa. These propositions merely focus on the potential benefit of increasing the diversity of options open to women and men, and thus, of avoiding the unnecessary waste of valuable human resources.

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APPENDIX A

Attitudes toward Women

The statements listed below describe attitudes toward the role of women in society which different people have. There are no right or wrong answers, only opinions. You are asked to express your feelings about each statement by indicating whether you (A) Agree Strongly, (B) Agree Mildly, (C) Disagree Mildly, or (D) Disagree Strongly. Select the letter that best describes your answer and blacken the circle representing your answer for each question on the answer sheet. Use numbers 141 through 165 in the answer sheet II for the following items.

	<u>Agree Strongly</u>	<u>Agree Mildly</u>	<u>Disagree Mildly</u>	<u>Disagree Strongly</u>
B141. Swearing and obscenity is more repulsive in the speech of a woman than a man.	A	B	C	D
B142. Women should take increasing responsibility for leadership in solving the intellectual and social problems of the day.	A	B	C	D
B143. Both husband and wife should be allowed the same grounds for divorce.	A	B	C	D
B144. Telling dirty jokes should be mostly a masculine prerogative	A	B	C	D
B145. Intoxication among women is worse than intoxication among men.	A	B	C	D
B146. Under modern economic conditions with women being active outside the home, men should share in household tasks such as washing dishes and doing the laundry.	A	B	C	D

AWS (PAGE 2)

		<u>Agree Strongly</u>	<u>Agree Mildly</u>	<u>Disagree Mildly</u>	<u>Disagree Strongly</u>
B147.	It is insulting to women to have the "obey" clause remain in the marriage service.	A	B	C	D
B148.	There should be a strict merit system in job appointment and promotion without regard to sex.	A	B	C	D
B149.	A woman should be as free as a man to propose marriage.	A	B	C	D
B150.	Women should worry less about their rights and more about becoming good wives and mothers.	A	B	C	D
B151.	Women earning as much as their dates should bear equally the expense when they go out together.	A	B	C	D
B152.	Women should assume their rightful place in business and all the professions along with men.	A	B	C	D
B153.	A woman should not expect to go to exactly the same places or to have quite the same freedom of action as a man.	A	B	C	D
B154.	Sons in a family should be given more encouragement to go to college than daughters.	A	B	C	D
B155.	It is ridiculous for a woman to run a locomotive and for a man to darn socks.	A	B	C	D
B156.	In general, the father should have greater authority than the mother in the bringing up of children.	A	B	C	D
B157.	Women should be encouraged not to become sexually intimate with anyone before marriage, even their fiances.	A	B	C	D

AWS (PAGE 3)

		<u>Agree Strongly</u>	<u>Agree Mildly</u>	<u>Disagree Mildly</u>	<u>Disagree Strongly</u>
B158.	The husband should not be favoured by law over the wife in the disposal of family property or income.	A	B	C	D
B159.	Women should be concerned with their duties of childrearing and house-tending, rather than with desires for professional and business careers.	A	B	C	D
B160.	The intellectual leadership of a community should be largely in the hands of men.	A	B	C	D
B161.	Economic and social freedom is worth far more to women than acceptance of the ideal of femininity which has been set by men.	A	B	C	D
B162.	On the average, women should be regarded as less capable of contribution to economic production than are men.	A	B	C	D
B163.	There are many jobs in which men should be given preference over women in being hired or promoted.	A	B	C	D
B164.	Women should be given equal opportunity with men for apprenticeship in the various trades.	A	B	C	D
B165.	The modern girl is entitled to the same freedom from regulation and control that is given to the modern boy.	A	B	C	D

APPENDIX B

Personal Attributes Questionnaire

The items below inquire about what kind of a person you think you are. Each item consists of a pair of characteristics, with the letters A-E in between. For example:

Not at all Artistic A....B....C....D....E Very Artistic

Each pair describes contradictory characteristics--that is, you cannot be both at the same time, such as very artistic and not at all artistic.

The letters form a scale between the two extremes. You are to choose a letter which describes where you fall on the scale. For example, if you think you have no artistic ability, you would choose A. If you think you are pretty good, you might choose D. If you are only medium, you might choose C, and so forth. Once you have chosen the letter representing your answer, blacken the circle under that letter on the answer sheet. Do this for each of the following items:

B117.	Not at all aggressive	A....B....C....D....E	Very aggressive
B118.	Not at all independent	A....B....C....D....E	Very independent
B119.	Not at all emotional	A....B....C....D....E	Very emotional
B120.	Very submissive	A....B....C....D....E	Very dominant

PAQ (PAGE 2)

B121.	Not at all excitable in a major crisis	A....B....C....D....E	Very excitable in a major crisis
B122.	Very passive	A....B....C....D....E	Very active
B123.	Not at all able to devote self completely to others	A....B....C....D....E	Able to devote self completely to others
B124.	Very rough	A....B....C....D....E	Very gentle
B125.	Not at all helpful to others	A....B....C....D....E	Very helpful to others
B126.	Not at all competitive	A....B....C....D....E	Very competitive
B127.	Very home oriented	A....B....C....D....E	Very worldly
B128.	Not at all kind	A....B....C....D....E	Very kind
B129.	Indifferent to others' approval	A....B....C....D....E	Highly needful of others' approval
B130.	Feelings not easily hurt	A....B....C....D....E	Feelings easily hurt
B131.	Not at all aware of feelings of others	A....B....C....D....E	Very aware of feelings of others
B132.	Can make decisions easily	A....B....C....D....E	Has difficulty making decisions
B133.	Gives up very easily	A....B....C....D....E	Never gives up easily
B134.	Never cries	A....B....C....D....E	Cries very easily
B135.	Not at all self-confident	A....B....C....D....E	Very self-confident
B136.	Feels very inferior	A....B....C....D....E	Feels very superior
B137.	Not at all understanding of others	A....B....C....D....E	Very understanding of others
B138.	Very cold in relations with others	A....B....C....D....E	Very warm in relations with others
B139.	Very little need for security	A....B....C....D....E	Very strong need for security
B140.	Goes to pieces under pressure	A....B....C....D....E	Stands up well under pressure

APPENDIX C

FOR EACH OF THE FOLLOWING STATEMENTS, INDICATE HOW IMPORTANT IT IS TO YOU.

IT IS NOW OR WILL BE IMPORTANT FOR ME TO. . .		LITTLE OR NO IMPORTANCE	SOME IMPORTANCE	IMPORTANT	VERY IMPORTANT
A. 1.	USE ALL MY SKILLS AND KNOWLEDGE	☐	☐	☐	☐
A. 2.	OBTAIN RESULTS WHICH SHOW THAT I HAVE DONE WELL	☐	☐	☐	☐
A. 3.	GET AHEAD	☐	☐	☐	☐
A. 4.	MAKE LIFE MORE BEAUTIFUL	☐	☐	☐	☐
A. 5.	HELP PEOPLE WITH PROBLEMS	☐	☐	☐	☐
A. 6.	BE ABLE TO TAKE CHARGE AT WORK WHEN NECESSARY	☐	☐	☐	☐
A. 7.	ACT ON MY OWN	☐	☐	☐	☐
A. 8.	DISCOVER DEVELOP, OR DESIGN NEW THINGS	☐	☐	☐	☐
A. 9.	BE ABLE TO AFFORD THE THINGS I WANT	☐	☐	☐	☐
A. 10.	LIVE ACCORDING TO MY OWN IDEAS	☐	☐	☐	☐
A. 11.	DEVELOP AS A PERSON	☐	☐	☐	☐
A. 12.	EXERCISE	☐	☐	☐	☐
A. 13.	BE ADMIRER FOR MY KNOWLEDGE AND SKILLS	☐	☐	☐	☐
A. 14.	DO THINGS THAT INVOLVE SOME RISK	☐	☐	☐	☐
A. 15.	TAKE PART IN ACTIVITIES WITH OTHER PEOPLE	☐	☐	☐	☐
A. 16.	SPEND TIME WITH THE PEOPLE WHO ARE SPECIAL TO ME	☐	☐	☐	☐
A. 17.	HAVE EACH DAY BE DIFFERENT IN SOME WAY	☐	☐	☐	☐
A. 18.	HAVE GOOD SPACE AND LIGHT IN WHICH TO WORK	☐	☐	☐	☐
A. 19.	LIVE WHERE PEOPLE OF MY RELIGION AND RACE ARE ACCEPTED	☐	☐	☐	☐
A. 20.	WORK HARD PHYSICALLY	☐	☐	☐	☐
A. 21.	DO WORK IN WHICH I HAVE ABILITIES	☐	☐	☐	☐
A. 22.	KNOW THAT MY EFFORTS IN LIFE WILL SHOW	☐	☐	☐	☐
A. 23.	ADVANCE QUICKLY IN MY CAREER	☐	☐	☐	☐
A. 24.	FIND PLEASURE IN THE BEAUTY OF MY WORK	☐	☐	☐	☐
A. 25.	BE INVOLVED IN WORK WHICH HELPS PEOPLE	☐	☐	☐	☐
A. 26.	BE A LEADER ON THE JOB	☐	☐	☐	☐
A. 27.	MAKE MY OWN DECISIONS AT WORK	☐	☐	☐	☐
A. 28.	CREATE SOMETHING NEW IN MY WORK	☐	☐	☐	☐

FOR EACH OF THE FOLLOWING STATEMENTS, INDICATE HOW IMPORTANT IT IS TO YOU					
IT IS NOW OR WILL BE IMPORTANT FOR ME TO. . .		LITTLE OR NO IMPORTANCE	SOME IMPORTANCE	MODERATE	VERY IMPORTANT
A.	29. HAVE A GOOD INCOME	☐	☐	☐	☐
A.	30. LIVE MY LIFE MY WAY	☐	☐	☐	☐
A.	31. HAVE IDEAS ABOUT WHAT TO DO WITH MY LIFE	☐	☐	☐	☐
A.	32. TAKE PART IN SPORTS AND OTHER PHYSICAL ACTIVITIES	☐	☐	☐	☐
A.	33. RECEIVE RECOGNITION FOR MY ACCOMPLISHMENTS	☐	☐	☐	☐
A.	34. FEEL THAT THERE IS SOME RISK OR DANGER IN MY WORK	☐	☐	☐	☐
A.	35. WORK IN A GROUP RATHER THAN BY MYSELF	☐	☐	☐	☐
A.	36. DO THINGS WITH PEOPLE I LIKE	☐	☐	☐	☐
A.	37. DO A NUMBER OF DIFFERENT THINGS EACH DAY	☐	☐	☐	☐
A.	38. HAVE GOOD SANITARY FACILITIES (E.G. WASHROOM) AT WORK	☐	☐	☐	☐
A.	39. WORK WHERE PEOPLE OF MY ETHNIC ORIGIN CAN HAVE GOOD CAREERS	☐	☐	☐	☐
A.	40. BE ABLE TO CARRY HEAVY THINGS EASILY	☐	☐	☐	☐
A.	41. DO WORK IN WHICH I CAN DEVELOP MY ABILITIES	☐	☐	☐	☐
A.	42. REACH A HIGH STANDARD IN MY WORK	☐	☐	☐	☐
A.	43. BE ABLE TO GET PROMOTIONS	☐	☐	☐	☐
A.	44. BE CONCERNED WITH BEAUTY IN MY WORK	☐	☐	☐	☐
A.	45. HELP OTHERS	☐	☐	☐	☐
A.	46. MANAGE THINGS AT WORK	☐	☐	☐	☐
A.	47. BE FREE TO GET ON WITH A JOB IN MY OWN WAY	☐	☐	☐	☐
A.	48. HAVE THE OPPORTUNITY TO TRY OUT NEW IDEAS AT WORK	☐	☐	☐	☐
A.	49. WORK WHERE EMPLOYMENT IS REGULAR AND SECURE	☐	☐	☐	☐
A.	50. WORK AT WHAT I WANT TO WHEN I WANT TO	☐	☐	☐	☐
A.	51. FIND PERSONAL SATISFACTION IN MY WORK	☐	☐	☐	☐
A.	52. BE PHYSICALLY ACTIVE IN MY WORK	☐	☐	☐	☐
A.	53. BE RESPECTED FOR THE QUALITY OF MY WORK	☐	☐	☐	☐
A.	54. TAKE ON DANGEROUS TASKS, IF THEY INTEREST ME	☐	☐	☐	☐
A.	55. BE WITH OTHER PEOPLE WHILE I WORK	☐	☐	☐	☐
A.	56. WORK WITH PEOPLE I LIKE	☐	☐	☐	☐

FOR EACH OF THE FOLLOWING STATEMENTS, INDICATE HOW IMPORTANT IT IS TO YOU.

IT IS NOW OR WILL BE IMPORTANT FOR ME TO. . .		LITTLE OR NO IMPORTANCE	SOME IMPORTANCE	IMPORTANT	VERY IMPORTANT
A.	57. CHANGE WORK ACTIVITIES FREQUENTLY	☐	☐	☐	☐
A.	58. BE PROTECTED FROM THE WEATHER WHILE I WORK	☐	☐	☐	☐
A.	59. WORK IN A LANGUAGE WITH WHICH I AM COMFORTABLE	☐	☐	☐	☐
A.	60. USE MY PHYSICAL STRENGTH AT WORK	☐	☐	☐	☐
A.	61. USE MY TALENTS IN MY WORK	☐	☐	☐	☐
A.	62. ACHIEVE THE GOALS I HAVE SET FOR MYSELF	☐	☐	☐	☐
A.	63. WORK WHERE PEOPLE HAVE THE CHANCE TO GET AHEAD	☐	☐	☐	☐
A.	64. ADD TO THE BEAUTY OF MY ENVIRONMENT	☐	☐	☐	☐
A.	65. GIVE HELP TO THOSE WHO NEED IT	☐	☐	☐	☐
A.	66. HAVE OTHERS FOLLOW MY INSTRUCTIONS	☐	☐	☐	☐
A.	67. BE INDEPENDENT	☐	☐	☐	☐
A.	68. INVENT NEW WAYS TO SOLVE PROBLEMS	☐	☐	☐	☐
A.	69. BE FINANCIALLY SECURE	☐	☐	☐	☐
A.	70. CHOOSE MY OWN STYLE OF LIFE	☐	☐	☐	☐
A.	71. TAKE MY RESPONSIBILITIES SERIOUSLY	☐	☐	☐	☐
A.	72. BE PHYSICALLY FIT ENOUGH TO DO MY JOB	☐	☐	☐	☐
A.	73. HAVE OTHERS THINK WELL OF THE WORK I DO	☐	☐	☐	☐
A.	74. TAKE CHANCES IN MY LIFE	☐	☐	☐	☐
A.	75. BE INVOLVED WITH OTHERS	☐	☐	☐	☐
A.	76. HAVE GOOD FRIENDS	☐	☐	☐	☐
A.	77. HAVE VARIETY IN MY LIFE	☐	☐	☐	☐
A.	78. WORK IN A PLACE THAT IS FREE OF HAZARDS	☐	☐	☐	☐
A.	79. USE THE LANGUAGE OF MY CHOICE WHENEVER I WANT	☐	☐	☐	☐
A.	80. BE ABLE TO MOVE HEAVY OBJECTS	☐	☐	☐	☐
A.	81. WORK AT WHAT I AM GOOD AT	☐	☐	☐	☐
A.	82. COMPLETE WHAT I START	☐	☐	☐	☐
A.	83. BE SUCCESSFUL	☐	☐	☐	☐
A.	84. BE ABLE TO APPRECIATE BEAUTY	☐	☐	☐	☐

FOR EACH OF THE FOLLOWING STATEMENTS, INDICATE HOW IMPORTANT IT IS TO YOU.					
IT IS NOW OR WILL BE IMPORTANT FOR ME TO. . .		LITTLE OR NO IMPORTANCE	SOME IMPORTANCE	IMPORTANT	VERY IMPORTANT
A.	85. BE CONSIDERATE OF OTHERS	☐	☐	☐	☐
A.	86. HAVE THE AUTHORITY AT WORK TO GET THINGS DONE	☐	☐	☐	☐
A.	87. CHOOSE HOW I AM GOING TO DO MY WORK	☐	☐	☐	☐
A.	88. USE MY IMAGINATION WHENEVER I CAN	☐	☐	☐	☐
A.	89. EARN A STEADY INCOME	☐	☐	☐	☐
A.	90. WORK WHERE THERE ARE FEW RULES OR REGULATIONS	☐	☐	☐	☐
A.	91. BE RESPONSIBLE FOR DOING MY WORK WELL	☐	☐	☐	☐
A.	92. KEEP MY BODY FIT	☐	☐	☐	☐
A.	93. BE KNOWN FOR DOING GOOD WORK	☐	☐	☐	☐
A.	94. GAMBLE WHEN THERE IS SOMETHING TO GAIN	☐	☐	☐	☐
A.	95. SPEND TIME WITH FRIENDS	☐	☐	☐	☐
A.	96. HAVE FRIENDS WHO WILL HELP ME WHEN I HAVE PROBLEMS	☐	☐	☐	☐
A.	97. HAVE VARIETY IN MY WORK	☐	☐	☐	☐
A.	98. HAVE A COMFORTABLE WORK PLACE	☐	☐	☐	☐
A.	99. FEEL PROUD OF MY CULTURAL HERITAGE	☐	☐	☐	☐
A.	100. BE PHYSICALLY STRONG	☐	☐	☐	☐

AFFENDIX D

Role Values Grid

In this section, you will be asked questions which may sound like those you have already answered. However, here your answers will show what values you seek in each of the five major life roles: studying, working, community service, home and family and leisure activities. What you value may often differ in each activity.

Please read each statement carefully and then use the following scale to show how much opportunity you see to find each value in each activity. Very occasionally, you may feel that a value does not apply to a particular activity. When this happens, fill in the circle "NA" or "Not Applicable".

WHAT OPPORTUNITY DO YOU SEE NOW OR IN THE FUTURE TO . . .

1 means - Little or none

2 means - Some

3 means - Quite a lot

4 means - A great deal

Help others through my						Gamble where there is something to gain by							
B36	studying	1	2	3	4	5	B71	studying	1	2	3	4	5
B37	working	1	2	3	4	5	B72	working	1	2	3	4	5
B38	community service	1	2	3	4	5	B73	doing community service	1	2	3	4	5
B39	home and family	1	2	3	4	5	B74	doing home and family activities	1	2	3	4	5
B40	leisure activities	1	2	3	4	5	B75	having leisure activities	1	2	3	4	5

Act on my own in						Do things with other people in							
B41	studying	1	2	3	4	5	B76	studying	1	2	3	4	5
B42	working	1	2	3	4	5	B77	working	1	2	3	4	5
B43	community service	1	2	3	4	5	B78	community service	1	2	3	4	5
B44	home and family	1	2	3	4	5	B79	home and family	1	2	3	4	5
B45	leisure activities	1	2	3	4	5	B80	leisure activities	1	2	3	4	5

APPENDIX E

Personal Information

AGE. Your age on January 1, 1985:

- (1) 18 to 22 (2) 23 to 27 (3) 28 to 32
- (4) 33 to 39 (5) 40 and above

B91. What is your marital status?

- (1) Never married (2) Now married (3) No longer married

B95. What kind of work does your father normally do or would do if working?

- (1) Professional (2) Clerical & (3) Skilled
 & Managerial Sales
- (4) Semi-skilled (5) Does not apply
 or unskilled

B96. What was your approximate total family income in 1984 (for members living in the same household e.g. husband and wife, parents)?

- (1) Less than (2) \$20,000 to (3) \$40,000 to
 \$20,000 \$39,999 \$59,999
- (4) \$60,000 to (5) \$80,000 and above
 \$79,999

B111. How would you rate your father's attitude toward women's educational/occupational achievement?

- (1) Very negative (2) Negative (3) Neither positive
 nor negative
- (4) Positive (5) Very positive

(Personal Information)

B113. What is the total number of years of education your mother has completed successfully?

- (1) up to 8 (2) 9 to 11 (3) 12 to 13
- (4) 14 to 16 (5) 17 or more

B114. How would you rate your mother's attitude toward women's educational/occupational achievement?

- (1) Very negative (2) Negative (3) Neither positive
nor negative
- (4) Positive (5) Very positive

B115. How would you rate your mother's attitude toward her own occupational/community involvement?

- (1) Very negative (2) Negative (3) Neither positive
nor negative
- (4) Positive (5) Very positive

APPENDIX F

Most of the questions so far have asked about how you see yourself and the world. Now we'd like to know more about your world. Since your friends are part of your world, we'd like to learn something about them. Specifically, we are interested in the attitudes of your close friends. Beginning with question 63, you will be presented with a series of statements. Please respond to these questions as you think your close friends would. In other words, we want to know how your friends think, not how you think. Of course, your friends may have differing attitudes, but try to answer in terms of the consensus of their attitudes, or in terms of the most significant person(s) in your life at present.

You will be asked to indicate how much your friends agree with each statement, from STRONGLY DISAGREE (A), DISAGREE (B), NEITHER AGREE NOR DISAGREE (C), AGREE (D), to STRONGLY AGREE (E).

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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B168. Unless men take on more of the responsibility for household and child care, women will remain too burdened to become whole persons.

A	B	C	D	E
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B169. A woman should be more flexible in accommodating her career to her husband's, since his career is generally the chief means of economic support.

A	B	C	D	E
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B170. It is just as important for women to have careers as for men to have careers.

A	B	C	D	E
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	Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
B171. The idea that occupational or educational success is somehow more important or more appropriate for men than for women is absurd.	A	B	C	D	E
B172. It is not as important for women to get good grades and do well academically in college as it is for men, since men are more likely to pursue lifelong careers.	A	B	C	D	E
B173. Men are, by nature, better suited to the responsibilities and pressures of occupational achievement.	A	B	C	D	E
B174. Men should be willing to help the careers of women by sharing housekeeping and child care duties with them.	A	B	C	D	E
B175. Although women are asking for more opportunity to engage in kinds of work that, up to now, have been closed to them, there are many kinds of work for which men are really better suited than women.	A	B	C	D	E
B176. Careers before children arrive are fine, but after the birth of children, women belong in the home.	A	B	C	D	E

		Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
B177.	Rearing boys and girls to conform to traditionally-defined sex roles limits the full development of their personalities.	A	B	C	D	E
B178.	The traditional sex roles provide an important and essential form of social order.	A	B	C	D	E
B179.	The greater emotionality of women is a hindrance to them in their careers.	A	B	C	D	E
B180.	When men and women share equal responsibility for family, work, and society, relationships between them will become less interesting than they are today.	A	B	C	D	E

PEER EXPECTATIONS (PAGE 4)

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
C1. The traditional roles of male as breadwinner and female as homemaker are the most efficient division of labour.	A	B	C	D	E
C2. Men are unable to care for the emotional and physical needs of children as well as women are.	A	B	C	D	E
C3. Since sex-role differences have existed throughout all of human history, attempts to do away with them are working against human nature.	A	B	C	D	E
C4. Both men and women should be encouraged to make the most out of themselves as persons, even if this means an end to society's notions of appropriate male and female roles.	A	B	C	D	E
C5. Although women who choose to work outside the home have been criticized for neglecting their children, what usually happens is that family life benefits from their experience outside the home.	A	B	C	D	E
C6. How much do your friends agree with the general position of the Women's Liberation Movement?	A	B	C	D	E

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
C7. There is something unattractive about highly ambitious, career-oriented women.	A	B	C	D	E
C8. Women cannot really have both successful careers and happy marriages and families.	A	B	C	D	E
C9. The greater instability of relationships between men and women is one result of both sexes having careers.	A	B	C	D	E
C10. The most important roles for women are those of wife and mother.	A	B	C	D	E
C11. Boys should be provided with extra educational opportunity since, as adults, they will be assuming more responsibility for providing for the family.	A	B	C	D	E

APPENDIX G

Perceived Barriers and Opportunities

The occupational and educational systems are part of your world, too. This series of questions asks about how these systems appear to you. We are not asking how you would like these systems to be. We are simply asking for your honest views of these systems. Your responses should indicate how much you agree or disagree with each statement, from STRONGLY DISAGREE (A), DISAGREE (B), NEITHER AGREE NOR DISAGREE (C), AGREE (D), to STRONGLY AGREE (E).

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
C36. Occupational sex-stereotyping is no longer a barrier for women aspiring for a non-traditional career.	A	B	C	D	E