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Determinants leading to nontraditional occupational choices of secondary students in Massachusetts regional vocational technical schools.

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DETERMINANTS LEADING TO NONTRADITIONAL OCCUPATIONAL CHOICES OF SECONDARY STUDENTS IN MASSACHUSETTS REGIONAL VOCATIONAL TECHNICAL SCHOOLS

A Dissertation Presented

by

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ABSTRACT

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This study was undertaken to discover which determinants led Massachusetts regional vocational technical high school students to choose nontraditional occupations by examining two populations: (a) all of the nontraditional students enrolled in the 26 Massachusetts regional vocational technical schools, of which 19 schools participated, and (b) one of each student's parents or guardians.

Two survey instruments were used of which the first 15 items were questions directed to the nontraditional student or the parent/guardian. The last 10 items were reasons that may have led the student to a nontraditional choice, the importance of which were determined by the student and the parent/guardian. All the responses were subjected to a frequency distribution analysis, and the last 10 items were subjected to the chi-square test to determine relationships existing between variables of the student and of the

parent/guardian to each of the reasons. The student variables were gender of student, vocational experience of a student's sibling/s, and participation in an exploratory program. The parent/guardian variables were educational level, employment status, and economic status.

Findings revealed that the following determinants were important to the nontraditional choice: career opportunity of the program, interest in the subject, and exploratory programs and their teachers. There were significant positive relationships ($p = \leq .01$) between the student variable "Participation in an exploratory program" and the following: "The exploratory program made me interested in the career" and "Teachers in the exploratory program were great." There was only one significant relationship between the parent/guardian variables and their view of the importance of the reasons for the nontraditional choice, and it was a positive relationship ($p = \leq .05$). This variable was "Employment status" and the reason for the choice was "The program seemed easy." Regardless of the employment status of the parent or guardian, most respondents believed the reason was not important to the nontraditional choice.

Based on these findings, it was concluded that exploratory programs for all the courses offered by the schools should be presented to every new student and that the teachers of these exploratory programs should be chosen with great care.

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CHAPTER I

INTRODUCTION

Statement of the Problem

There is much awareness within the United States, other developed countries, and some developing countries as to the part discrimination can play in limiting educational opportunities for their citizens. Discrimination takes many forms. People can be denied educational opportunities because of their race, age, social status, and even gender.

When education is limited to a person because of her/his gender, females, males, and the country imposing the discrimination are prevented from advancement. This educational discrimination creates a major problem. Females and males who are assigned roles in a society, regardless of their natural inclinations, are exposed to an education to fit those roles. They become incomplete persons by not being allowed to be themselves. The problem becomes more complex because people and their societies both lose benefits that would be gained by an active program to eliminate gender discrimination and stereotyping. According to Klein (1985):

> The achievement of sex equity goals in society by the reduction of sex discrimination and sex stereotyping is valued for a wide variety of personal, political, economic, and philosophic reasons. Some personal and societal reasons for supporting sex equity are to optimize human development potential so that all females and males are able to develop themselves as individuals without limitations of gender-prescribed roles. For example, males as well as females should be encouraged to play nurturing roles

> toward their families and others. Key political reasons favoring sex equity focus on the need to provide basic human rights essential for a democracy and to eliminate discrimination against groups of people based on stereo-types. Some historians have also noted that less sex-stereotyped societies have had fewer wars than more sex-stereotyped societies. Economic reasons for advocating sex equity are based on concerns for adequate resource use. When certain groups are relegated to limited production responsibilities regardless of their qualifications, output is reduced. Philosophic reasons for sex equity are based on a variety of principles, including those that focus on justice, ethics, human dignity, and an accurate portrayal of the world as it is, or can be, without the continuing neglect of the contributions of the 51% of the world's population that is female. (p. xi)

In the area of education that is meant to lead directly to employment, such as vocational education, females, because of their gender, have been severely held back (Harvey & Noble, 1985), although males have not been entirely free from this type of discrimination (Stitt, 1988).

Much literature has been written regarding the ill effect of gender discrimination on females (Evans & Herr, 1978; Levitan, 1981; Morgan, 1984; Greene, 1985). It is a fact, in most parts of the world, that females are either denied the chance to enter occupations deemed fit only for males, or are paid less for doing the same work as males (Rieder, 1977; Bomboy, 1979; O'Toole, 1979; Cardenas, 1981a, 1981b; Cullen, 1988; Watson, 1989; King, 1990).

Though scant research has been done on the effect of males being denied opportunities to enter a predominately female occupation, what research does exist shows that males

are subjected to ridicule from both females and males for even attempting to enter such occupations (Farmer, Sidney, Bitters, & Brizius, 1985; Knight, Kouzekanani, & Lee, 1983; Hayes, 1984; Hayes, 1986; Sandell & Burge, 1988).

The net result of gender discrimination is that citizens have been restricted in pursuing occupational education suited to their interests and desires. Though the societies in which these citizens lived may have believed the rightness of assigning roles appropriate for females and males, possibly for the reproductive protection of females, and the power needed by males to provide protection, the day has passed for such narrow roles. Females and males have better control over reproduction today. The economic situation in many countries has made it necessary for females to work out of the home, desiring to or not. In addition, human rights activists and the feminist movement have sensitized people to the need for freedom of choice in all areas of human development. It has become imperative that educational opportunities be given to all citizens, regardless of "sex, race, ethnicity, handicap, age, religion, and so on" (Klein, 1985, p. xii) as one of the important steps to gain sex-equity in society (Klein, Russo, Campbell, & Harvey, 1985).

Accordingly, vocational education, within the United States, has set its aim to eliminate any form of gender-inequality in the programs offered to females and males, as stated by Sandell and Burge (1988):

Historically, vocational education has been sex-typed by program area, following patterns found in the work force. This sex typing has produced a high enrollment of females in training for lower-paying occupations, and a low enrollment of males in the caring and nurturant occupations (Farmer, Sidney, Bitters, & Brizius, 1985). Since the early 1970s, however, there have been efforts within vocational education, as within the total educational system and society in general, to grant all persons greater access to employment opportunities. These efforts are built on the belief that schools are a critical link in the social processes leading to the existing division of labor. (p. 16)

With this increased incentive to achieve sex equity, one goal that continues for vocational educators is to increase the enrollment of females and males in fields formally dominated by the opposite sex: for females especially, those fields with higher salary and prestige; and for males, those fields that prepare them for increased competence in fields and roles requiring socio-emotional skills (Farmer, et. al., 1985). Since some increases in enrollments of males and females in vocational programs nontraditional for their sex have taken place..., the current task is to discover ways to accelerate increases in these enrollments. This requires further understanding of the individuals who choose vocational paths nontraditional for their sex, as well as determining what forces continue to differentiate participation by sex. (p. 18)

The aim to eliminate sex-inequity in education within the United States was further promulgated, during the 1970s, by two legislative acts enacted by the United States Congress. Title IX of the Education Amendments of 1972, (Public Law 92-318) banned discrimination on the basis of gender, and became a landmark law. This legislation was followed by the Women's Education Equity Act of 1974 (Public Law 93-380) that provided funding for projects specifically

calling for more advanced programs for females in vocational and career education.

Despite this impetus, vocational education experienced little change in the enrollment practices related to the past. Legally required opportunities and anti-discriminatory policies were not enough to attract many students into programs considered nontraditional for their gender.

To offset the lack of students entering nontraditional programs, the United States Congress, through the Education Amendments of 1976, provided funds explicitly meant to end sex bias, sex discrimination, and sex-role stereotyping in vocational education. Each state was mandated to hire a full-time sex equity coordinator to provide leadership to eliminate barriers that prevent equal access to vocational education, give technical help to local educators, and to develop public relations programs to notify the public of vocational programs available to those interested, regardless of their gender.

Since only small gains were made, and enrollment patterns remained substantially the same during the 1970s, increased emphasis was placed on improving gender-equity in vocational education with the passing of the Carl D. Perkins Vocational Education Act in 1984. In addition to the requirements made with the 1976 amendments, each state had to set aside 8.5% of its federal vocational funds to provide vocational education and training leading to marketable

skills for single parents, homemakers, and displaced homemakers, along with another 3.5% set-aside aimed at ending sex bias and stereotyping in vocational programs. These set-asides were the largest that had ever been stipulated by the United States federal government as necessary to provide vocational preparation for females and for the support of males in nontraditional roles. This impetus was continued with the passage of the Carl D. Perkins Vocational and Applied Technology Act of 1990.

Though legislation and funding, as approved by the United States Congress, have increased the percentage of students enrolling in vocational programs nontraditional for their gender, the vocational education enterprise is well aware that sex-segregated enrollment practices still continue. All vocational program areas traditionally dominated by one gender remain highly sex-typed.

In order to stop this segregation, there is a movement within vocational education to study students who have chosen to learn a nontraditional occupation, hoping that answers to questions from these studies will help others in their vocational choices. As an example of this movement, Burge (1990), in her article "Vocational Education Gender-Equity Research Priorities for the 1990s," explains the need for vocational education to develop research studies that will facilitate entry to all occupations, regardless of gender. Burge mentions that intervention strategies must be put into place to determine the causes leading to

occupational choices, and that techniques to aid students to remain with those choices must be established. In a previous research article, "Profiles of Secondary Vocational Students Enrolled in Programs Nontraditional for Their Sex," Burge, and her co-author, Sandell, (1988) studied students who made nontraditional choices. Burge and Sandell concluded that more research is needed to ascertain the determinants that lead students to choose nontraditional vocational programs.

Despite legislation enacted, and the attempts of vocational education to offer all programs to either gender, most vocational programs continue to remain highly sex-typed. The barriers imposed by society as to which occupations are appropriate for females and males have been formidable and constitute a serious problem for all educational endeavors. Until methods are discovered to remove these barriers to enable both genders to have the right and freedom for similar education, employment, and salary, there can be no equality. The concept of gender-equity in the offering of vocational programs will remain a past and present wish for vocational education (Barlow, 1981), but not a reality (Houser & Garvey, 1981; Burge, 1990; Smith, P. A., 1990; Smith, D.C., 1991).

Purpose of the Study

The main purpose of the study is to discover the determinants that led Massachusetts regional vocational technical high school students to choose nontraditional occupations and the effects of external and internal factors upon those determinants.

Handley and Walker (1981) and Knight, Kouzekanani, and Lee (1983) examined the effect of external and internal factors upon occupational choice and recommended the need for more research in this area. Burge (1990), in her research article "Vocational Education Gender-Equity Research Priorities for the 1990s," continued the study on the effects of external and internal factors on vocational choice. Burge also examined the effect of intervention programs relative to students successfully remaining with their nontraditional vocational choice.

Reiterating the results of the Handley and Walker and the Knight, Kouzekanani, and Lee studies that external factors such as economic status, attitudes of parents, relatives, peers, and school personnel can prevent or help students in a vocational choice, Burge explained the need to determine what part these factors played in a nontraditional choice. Accordingly, the study seeks to discover whether these external factors were barriers or aids through answers to the following questions:

1. What is the socio-economic status of the parent or guardian of the nontraditional student?

2. Did siblings also study a vocational program?

3. Did "significant others" (guidance personnel, parents/guardians) determine the final choice?

4. What was the effect of peers on vocational choice?

5. Are parents pleased with the nontraditional choice?

6. How successful do parents/guardians believe their child will be in the nontraditional occupation?

Internal factors, within the minds of students, can also be a barrier or an assistance to a vocational choice. Answers were sought for the effect of internal factors to the nontraditional choice through the following questions:

1. Did the student always have an interest in the vocational subject being studied?

2. Did the student make the nontraditional choice on her/his own initiative?

3. Did the student change to a nontraditional program different from her/his original intention, and if so, why?

4. How satisfied is the student with the nontraditional vocational program?

Once a student has made a nontraditional occupational choice, intervention strategies are needed to keep students within the program. As stated by Burge (1990):

> Intervention programs for assisting students who enroll and complete programs nontraditional for their sex are another area that should be examined through research.... For males interested in female-intensive programs, the atmosphere--and at times the curriculum--can be as foreign to them as much of the educational system is to women. Given our social arena, finding ways to make programs previously considered unsuitable inviting to nontraditionals presents a challenge to

> all educators because of the well-established gender-related social and political climate. (p. 10)

Because of a need for the research mentioned above, the second aspect of the study will be to assess the effect of intervention strategies provided by the Massachusetts regional vocational technical schools relative to attracting students into nontraditional programs and for the prevention of discrimination to nontraditional students by peers and educational personnel. Listed below are questions about intervention factors to be answered by the study:

1. Was an exploratory program offered?

2. If an exploratory program was offered, how effective was it in attracting nontraditional students?

3. Did teachers of an exploratory program aid in the decision of the nontraditional choice?

4. Are students discriminated against by students of their same or opposite gender because of making a nontraditional choice?

5. Which vocational programs attract the most nontraditional students?

A final aspect will be to provide recommendations to the Massachusetts vocational enterprise, based on the statistical tabulations of the data resulting from the study, for formulating policies to encourage students to freely make occupational choices unhampered by fear of discrimination.

Importance of the Study

Handley and Walker (1981) examined the difficulties that female high school students have in choosing a nontraditional program of study:

> Despite legislative policies and intensified efforts of vocational educators to eliminate sex bias from the curriculum, enrollment of girls in "hard core" male dominated programs of vocational educational [sic] has continued to lag. Investigators, such as Lewis and Kaltrieder (1976) have suggested that the real barriers to women's entry into nontraditional career areas are found within the attitudes of the women, themselves. The influence of social factors, including the attitude of significant others, has been postulated by Ellis (1977) as a major factor in fostering sex role bias in the attitude of high school students toward appropriate work roles....
>
> Trigg and Perlman (1976) indicated that the peer group, rather than parents and teachers, provides the dominant attitudinal reference group for adolescents; hence, they may well be the "significant others" in which high school students see their expected sex role reflected most intensely. Consequently the attitudes of the peer group toward the appropriateness of study areas for female students may be a critical factor in influencing females to select themselves out of nontraditional career areas. (pp. 1-2)

Knight, Kouzekanani, and Lee (1983), although acknowledging that the findings of research do demonstrate gains made in educational gender-equity, state that males have more problems entering nontraditional fields than females do:

> In spite of these findings, one should recognize that although the social-emotional development of both sexes is hindered by sex-role stereotyping, research has indicated that it is more difficult for males than females to unlearn stereotyped behaviors (Smith & Farris, 1980).
>
> The early identification process for the boy is therefore paradoxical and tragic. Pressures are put on him to be "all boy", yet he has to

> achieve a masculine identification virtually by proxy, via a father who is either uninvolved, often absent, passive when present, or assuming a punitive role (Goldberg, 1976).
>
> Johnny may not do all he really likes to do because some of those activities may project him as a "sissy". Mom and Dad will probably discourage his interest in ballet dancing, dolls, and sewing. Other boys in the school may not play with him unless he can prove his masculinity to them. Our society not only demands that people live up to their full potential, but also fit predetermined roles; a situation which, for many people, in [sic] fraught with unreasonable contradictions.... Johnny has to be tough, has to do his best to conform to expectations of society for men, and has to practice his masculinity at all times no matter what the cost might be (PEER, 1981). (p. 3)

The quotes reviewed above demonstrate that gender-inequality, relative to the choosing of a vocation, is still in existence and still hampering freedom of choice for many students. This problem of gender-inequality is international, for both young students and adults, as is shown by studies such as those of Howard-Merrian (1983), Morgan (1984), Arriagada (1989), Chalungsooth (1989), Seeland (1991), and of others as examined by the researcher and presented in the "Review of Literature." Yet, some students have chosen to study subjects considered nontraditional for their gender. Until it can be determined which were the important factors that led these students to their nontraditional choice, vocational educators will be stymied in helping other students to choose a vocational program based on their interests, and not chosen, primarily, because of traditional beliefs. By destroying the sex-segregated reality of many vocational programs, students

will be able to study vocational programs according to their own inclinations. This will minimize the retention problem of students in nontraditional fields, and also offer a greater chance for their employability success.

Limitations of the Study

The study is to examine the determinants that led secondary students in the Massachusetts regional vocational technical schools to study for occupations considered nontraditional for their gender. These determinants will be extracted by a statistical analysis of the factors relative to the demographics of both students and one of their parents/guardians; influence of others; and the choice, by students and one of the parents/guardians, of important reasons that led to the study of a nontraditional program. Statistics resulting from the chi-square tests of the data of this study will not imply a cause-and-effect relationship.

Personalities of the students, financial success of students who graduated from nontraditional programs, or retention in the nontraditional field after graduation were not considered.

The results of this study are pertinent only for the formation of policies toward enrolling secondary students into nontraditional programs in the regional and non-regional vocational technical schools in Massachusetts. The results may not necessarily be useful for other age-groups within Massachusetts, or in other states or countries.

Definition of Terms

The following terms relating to the focus of the study are defined for the reader's reference:

Employed Professional, a person employed in an occupation which requires the minimum of a bachelor's degree.

Exploratory Program, a short vocational program designed to introduce a student to a trade or business so that a career decision can be made by the student based on interest and skills.

External Factors, attitudes or actions that are peripheral to the vocational student. They are communicated to the student by parents, relatives, peers, school personnel, and other associates, and they may aid or discourage a student in the choice of a nontraditional vocational program of study.

Factors, attitudes, actions, or facts that lead to results.

Gender-Equity, an equal opportunity given to females and males for similar education, employment, and wages.

Internal Factors, those factors that relate to, belong, or exist within the mind of a student. Often they are values or patterns of culture within a person's self that act as conscious or subconscious guiding principles, learned through socialization, that may aid or discourage the choosing of a nontraditional vocational program of study.

Nonformal Education, a short-term, non-credential-based education that meets the immediate needs of individuals. It is usually delivered in a variety of settings, which are close to the community, through flexibly structured programs that are learner, not teacher, centered.

Nontraditional Student, a female or male studying a technical or vocational subject usually studied and practiced by 75% or more of the opposite gender.

Regional Vocational Technical Schools, public secondary schools that offer both academic knowledge and specific vocational or technical skills for a variety of occupations. These schools are supported by cities or towns comprising a district from which the student enrollment is obtained.

Secondary Student, a student enrolled within grades 9 to 12 in a public school.

Shop, a vocational program studied by a student.

Vocational Education, instruction for students both in general education for self and skill training for occupations not requiring a bachelor's or higher degrees. Seven major educational areas are included: agriculture, distributive (marketing), home economics, health, office, technical, and trade/industry.

Vocational Training, skills offered, primarily for employment, through nonformal education.

Overview

It is to society's advantage to promote gender-equity, for both females and males, in all areas of education, employment, and wages.

The Massachusetts vocational education enterprise, abiding by the legislative acts of the United States Congress, has actively attempted to eliminate all forms of gender-inequality in its programs. Students have been exposed to vocational studies nontraditional for their gender to open new career opportunities and to test their aptitudes for these careers. Though most vocational programs remain highly sex-typed, there has been some success in having students choose programs of study that were considered nontraditional for their gender. What was the cause of this success?

Other areas of concern in the study are to discover how the vocational education enterprise is advocating gender-equity in other states and the relationship of Massachusetts and other states to the movement for gender-equity in vocational education worldwide.

What follows is a review of literature to seek answers for these concerns by examining the role played by vocational education in fostering gender-equity both nationally and internationally. This examination is continued by the study, through questionnaire instruments, to discover the determinants that led students of the Massachusetts regional vocational technical schools to

choose a nontraditional vocational program, the methodology used, and the resulting findings and conclusions. Finally, recommendations are made to the Massachusetts vocational education community that will be useful in attracting more students to nontraditional programs.

CHAPTER II

REVIEW OF LITERATURE

A review of literature was conducted to study the part played by vocational education in promoting gender-equity both within the United States and worldwide. The following review demonstrates that the lack of gender-equity in all areas of education, as experienced by both sexes, is a social problem not only for the United States but, also, internationally.

Beginning with the concept of gender-equity, this review examines the efforts extended by the vocational education community to eliminate this injustice. Studies from Canada, South America, Africa, Asia, Europe, and Oceania are reviewed to provide an international dimension of vocational education's contribution toward creating gender-equity. The literature reviewed from the United States' perspective examines the effort of vocational education to promulgate equality for both genders through the promotion of the following for both students and vocational personnel: (a) self-awareness of sex-stereotyping; (b) the role of family and peers in occupational choice; (c) the preparation of vocational education personnel for sex-equity; and (d) the recruitment, retention, and placement of students into nontraditional occupations.

Gender-Equity

Sex-role stereotyping, whether in educational opportunities offered to citizens (Plihal, Ernst, & Scholl, 1987), employment deemed acceptable because of one's gender (Hewlett, 1977), or the obligations of parenthood (Schultz, 1987) is harmful to both females and males:

> Sex-role stereotyping is harmful to women, both economically and psychologically. Females in vocational education, as in the work-place, generally expect to have few fields of work to choose from and are segregated into a small number of occupational areas. These female-intensive areas are typically low paying and carry low prestige when compared to the areas of the occupational spectrum that are male-intensive (Biddlecombe, Brown, Charlton, Dowden, Northcott, Onslow, Priestly, & Thompson, 1989). (Burge, 1990, p. 2)

Though the vocational education literature examines the harmful effect of sex-stereotyping on males (Gordon, 1981; Knight, Kouzekanani, & Lee, 1983; Stitt, 1988; Couch, 1989), the literature focuses mainly on broadening the vocational offerings for females as a means to develop "a more equitable income distribution between men and women" (Rieder, 1977). In addition, this focus is the result of vocational education's attempt to rectify the fact that females have been discriminated against the most in areas of education and careers (National Commission on Working Women of Wider Opportunities for Women, 1990; National Coalition for Women and Girls in Education, 1988).

The issue of gender-inequality for females, who must abide by decisions determined by patriarchies, is worldwide (Morgan, 1984), and has consumed much effort to eliminate.

Gordon (1991), in his study reviewing the historical background of occupational gender segregation related to vocational education, described the role of women and the divisions of labor within societies. He also summarized labor market statistics concerning females in nontraditional vocational areas. Some of Gordon's conclusions demonstrating gender-inequity worldwide are that: (a) development has been seen as the cure-all for the economic ills of less-developed countries, yet in all countries where development has advanced, women have lost ground, economically, relative to men; (b) public policy may support the entrance of females into nontraditional training and employment but it does not ensure it; (c) barriers that prevent the entry of females into nontraditional training and employment are both complex and interrelated; and (d) strategies to overcome barriers must focus both on changing institutions and giving individual support to all females.

The literature relative to the goal of gender-equity in vocational education, especially for females through nontraditional occupations, both internationally and in the United States, is presented in the following sections. The studies are reviewed chronologically, as much as possible.

An International Perspective

A review of the literature, relative to gender-equity in the offering of vocational programs, was conducted to study how programs in other lands compared to those within the United States. Dissertation abstracts, national and international vocational education research journals, and reports from the Educational Resources Information Center (ERIC) were studied for an international perspective.

Although information retrieved concerning gender-equity in vocational education in other countries was not as extensive as that gathered for the United States, some research reports were obtained. These reports verified the difficulty, worldwide, of attracting students to vocational programs considered non-traditional for their gender, and demonstrated that more impetus is being given to females, rather than males, to study non-traditional subjects.

Pertinent information for the following countries resulted from the review of literature: Canada; South America; Africa; Asia; Europe, and Oceania:

Canada

While the United States was experiencing the civil rights movement, relative to equal opportunities for all, its neighbor to the north, Canada, likewise was examining its policy of equal opportunities for Canadian citizens, especially females. Faced with a growing number of women returning to work after having had their children, the Canadian Department of Labour (1965) discovered that most

women, because of the education given to them as young females, were ill-prepared for work outside of the home. For employment that could be found, the salaries were low. In addition, no system of child care existed that could allow women to freely become employed. This limiting of educational opportunities given to Canadian women in the past, along with the fact that most well-paying occupations were male-segregated, combined with the lack of child care services to create barriers to successful financial employment for women. Studying the problem in depth and trying to arrive at solutions convinced the Canadian Department of Labour that "this whole subject is a matter of interest and concern not only in Canada but in practically all of today's world, whatever the stage of industrial development in a particular country. It has, therefore, been engaging attention at the international level" (Canadian Department of Labour, 1965; Introduction).

Leaving North America and examining other lands, the researcher discovered literature concerned with gender-inequality as to how it effects both the development of countries and the inhabitants within. Once again, the literature is concerned with advocating gender-equality for females, many of them at the adult stage, and the use of remedial vocational training is emphasized to place them on an economic par with males. This emphasis is creating awareness of gender-inequality in the primary and secondary

levels of schooling, for both academic and vocational education, to the advantage of both genders.

South America

The literature relative to vocational education's effort to eliminate gender-inequality in South America was very limited. Information for only two countries, Colombia and Peru, was obtained.

Colombia: 1970s

Thirsk (1974) published a study examining how a lack of educational opportunities in rural Colombia discriminated against different groups to the detriment of all. His recommendations advocated more vocational education and training for students and adults because of the better returns to Colombia and its inhabitants resulting from this type of education and training. At this same time, his research criticized the lack of access to education for females in rural areas, and emphasized how it placed females in a subservient position.

Peru: 1980s/1990s

A study of post-school vocational training, with data analyzed by gender in urban Peru, concluded that wage and occupational discrimination prevented women from entering the most successful training programs and the better jobs as well and that job-training alone was not an effective means to increase women's labor market competitiveness relative to men (Arriagada, 1989). Though education and training did enhance the contribution of women in the labor market, the

majority of women still were self-employed in low-paying jobs (King, 1990).

Africa

The review of literature has revealed that efforts to promote sex-equity in the offering of vocational education courses for African students, especially females, have been held back because of social, political, and religious reasons.

1970s/1980s

Research conducted by the Women's Programme of Africa (1973) concerned itself with the participation of women as human resources in the process of Africa's development. It was determined that limited educational and training opportunities were being given to females. As an aid to both the development of Africa and its women, vocational education training programs were considered necessary strategies for improvement. Recently, in trying to aid female refugees in Africa, vocational training was being stressed as necessary for women to be prepared for occupations in demand, including those nontraditional for their gender (Hall, 1988).

Morocco: 1970s/1980s

Youssef, Sadka, and Murphy (1979), in examining non-formal vocational training for women in Morocco, determined that the programs were catering to female adolescents from low-income families and were teaching the adolescents traditional crafts. The study recommended that non-craft

vocational training be introduced for both sexes to better prepare the adolescents for industry. During the same year, this recommendation was reiterated by a second study concerning the non-formal education for Moroccan women (U.S. Agency for International Development, 1979). Yet, it was not until an additional study of this situation was published in 1983 did it become officially noted that the Moroccan government had finally become aware of the need to introduce females to traditionally male skills (Howard-Merriam, 1983).

Asia

The literature relative to vocational education in Asia reveals that students are primarily influenced by family members and school personnel in their occupational choices, and these choices are mostly traditional for their gender.

Pakistan: 1970s/1980s

Examining the educational policy of Pakistan, the Federal Ministry of Education (1978) determined that a strictly academic education was a luxury Pakistan could not afford. It was decided that education had to be functional, especially for rural areas. Consequently, compulsory vocational education was introduced to 1,200 schools of the general primary school system. More specific vocational education courses were offered to students in grades 9 and 10. However, the vocational education courses given were still stereotypically aimed at what was deemed appropriate for males and females to study.

Pakistan, even by 1985, had not experienced complete change. Ownership for women was still determined and controlled by their husbands. Especially in rural areas, the economic status of women was very low under Islamic common law. Females had not been equal recipients of vocational training, and equality of opportunity was lacking because of their gender. The role of women continues to be neglected in plans and programs designed for change, and this is sanctioned by cultural and religious norms (Chu, 1985).

Malaysia: 1980s

Research was conducted in Malaysia to ascertain sex-role attitudes and background characteristics of women in nontraditional careers, traditional careers, and homemaking. Results indicated that women in nontraditional careers were the most liberal among the three groups in both their overall sex-role attitudes and their sex-role attitudes in the vocational, educational, and intellectual areas. Findings also revealed differences among the three groups in terms of their background characteristics with nontraditional students having more mothers employed, parents more educated, and both parents earning better salaries. With these results it was hoped, that by determining the sex-role attitudes of females, and the demographics of their parents, it would be possible to predict careers they would choose (Nasir, 1984).

Philippines: 1980s

Recognizing the need for courses to provide basic and advanced skills to women in nontraditional occupations, during the early 1980s, a program was instituted in the Philippines so that females could find employment and actively participate in the country's industrialization campaign (Zafra, 1985). And, in 1986, a study was published that investigated the college vocational choices of selected female populations of the Philippines, comparing motivational factors in student choices of traditional and nontraditional curricula. It was discovered that college women in the Philippines were being influenced primarily by family members and school personnel (especially teachers) in their occupational choices (Angeles-Bernado, 1986).

Malaysia, Philippines, and Thailand: 1980s/1990s

Further research was conducted to examine career decision-making of southeast Asian women of Malaysia, the Philippines, and Thailand. It was discovered that of the 13 factors studied that could influence decisions, the attitude of the family was the most important (Chalungsooth, 1989). Yet, recent research by Holekamp (1991) has shown that young females are forming their own concept of possible careers. When adolescents of both genders in the United States and the Philippines were asked to determine the "ideal women," females emphasized "women working in nontraditional roles."

Bahrain: 1980s

In Bahrain, one of the Persian Gulf states, a plan was instituted to integrate women into the labor force as an essential component of modern society. Many cultural, social, and religious barriers kept females from joining the labor force and the low level of women's education, training, and the inefficiency of child care services were key obstacles. It was recommended, among other things, that the proportion of females in vocational training programs be increased (Fakhro, 1987).

Korea: 1980s

Examining the role of vocational education as a vehicle for enhancing social equity to secondary school students in Korea, Jin (1988) discovered that students from low social-economic-status family backgrounds were far more likely to attend vocational schools, and by so doing reduced the likelihood of attending a two-year, and especially a four-year, college. Nevertheless, the effects of vocational schooling were greater for those who came from less advantaged groups, such as low social-economic status, rural areas, or female, than their more privileged counterparts who attended academic schools. Vocational school graduates earned better pay and were more likely to be employed, at least immediately after graduation, than the academic graduates, because of having more work experience. Yet, Rhee (1989) revealed that Korean female adolescents' occupational aspirations were still sex-stereotyped as

almost three-quarters of them aspired to female-dominated occupations.

Europe

The review of literature examining vocational education in the following countries demonstrates that European students are also influenced by family members to choose traditional programs of study for their gender.

Belgium: 1980s

In Brussels, a handbook was created as a guide to improve gender-equity for both girls and boys through their primary and secondary education. Aid also was given for the transition from school to adult and working life for these students. Positive actions were drawn from European experiences to improve access to educational and training opportunities, as well as the difficult task of changing attitudes. The active acceptance of teachers, administrators, publishers of teaching materials, and parents relative to the promotion of gender-equity for all students was emphasized as essential (Banks, 1985).

A separate study focused on the problems faced by girls and young women during the transition from school to adult and working life. Issues causing the problems were classified as (a) social and economic, (b) a lack of a link between schools and businesses, and (c) insufficient working experiences for students (Smith, 1988).

England: 1980s

Projects were conducted, during the 1980s, to determine strategies to encourage women to participate in the studies of physical science and technology, especially at the technician and craft levels. One strategy recommended was the use of female academic staff to raise girls' and women's awareness of the worth of science and technology occupations (Stoney & Reid, 1981). Additionally, vocational education adult programs were established to end stereotyping of occupations for females and to produce a better convergence of women's and men's roles. The philosophy of the gender-equality of these programs eventually sifted down to the primary and secondary schooling of British young females to help end stereotyping of occupations (Smith, 1987).

Germany: 1980s/1990s

As part of a research program aimed at opening traditionally masculine occupations to females, occupational stress in technical, traditionally masculine occupations was examined (Schuler, Bartel, & Funfgelt, 1984). Occupational stress was defined and measured according to the level of vocational achievement, well-being, and occupational satisfaction of the student, and the strength of the student's social and occupational integration. Findings indicated that girls' average performance was lower than boys', with a larger discrepancy in theory concepts than in more practical work. Both girls and boys mentioned being

more uncomfortable in a school setting than at a practical work site.

A study by Staff and Stapf (1985) investigated factors influencing career choice among 16-17 year old students engaged in either sex-typical or sex-atypical vocational studies. The population consisted of female students pursuing typically masculine careers, female students pursuing typically feminine fields, and males pursuing typically masculine careers. There were no important differences among the three groups with regard to the influence of achievement motivation, expectation of success, self-concept, decision-making process, and life plan on the career choice process. However, in comparison with the other groups, female students with typically masculine careers had the highest achievement motivation and most positive self-concept, and described a more progressive life plan. Student families were important influences on career choice, with different family dynamics evident for the three study groups.

Seeland (1991) presented the results of the CEDEFOP's (European Centre for the Development of Vocational Training) Equal Opportunities and Vocational Training program from its inception in 1977 until 1990. The report stated that women and girls complete job training in men's fields as well as or better than men, but few females have moved into such fields. Nevertheless, this training has positively changed the attitude of females toward new careers.

Finland: 1990s

In studying the effect of teacher discrimination on student occupational choice, research by Lasonen (1990) determined that Finnish comprehensive vocational teachers' sex-role attitudes tended to parallel those of American vocational educators. Male teachers more typically followed the patterns of the segregated divisions of labor and the ideals of patriarchy than did the female teachers.

Oceania

The review of literature concerning vocational education in Australia and New Zealand was very limited and netted information only for Australia.

Australia: 1980s

In an Australian campaign designed to increase the number of high school females entering nontraditional trade areas, emphasis was placed on the problems they might encounter along with changing the attitudes of the females and the community. Results showed that the campaign contributed substantially to the increased number of females entering nontraditional occupations but it had little lasting impact due to a general Australian employment slump that disaffected the female students from their original nontraditional career goals (Pryor, 1985).

The United States Perspective

Beginning with the 1970s, when the United States passed federal legislation designed to promote gender-equity in all areas of education, the vocational education community has actively sought to eliminate discrimination based on gender. Much research has been conducted to determine factors that influence students in their occupational choices. Extensive effort has been made to expose students to occupations nontraditional for their gender in the belief that (a) students should choose careers based on natural inclinations, not tradition, and (b) nontraditional occupations could lessen the salary discrepancy for females, and eventually converge salary levels for both genders.

Following is a review of literature, from the 1970s to the present, again presented chronologically, as much as possible. As in the review of literature for an international perspective, most of the literature is concerned with females and their choice of vocational programs and what can be done to expand those choices.

1970s

The impetus to promote gender-equity for all vocational education students began in earnest during the 1970s because of the legislation passed by the United States Congress. Research was begun to ascertain methods that would be useful to prevent sex stereotyping of vocational courses.

1977

Research was conducted to determine factors important to career choice, relative to gender, of a sample of Indiana high school students (New Educational Directions, 1977). Of the students interviewed, 80% indicated plans to enter a traditional career choice with regard to sex stereotyping while only 13% indicated plans to enter a nontraditional occupation (7% were undecided). Five factors were identified as primary influences on student career plans: (a) experience in courses, (b) interests, (c) role models, (d) economics, and (e) peer and/or relatives' influences. However, only three of these factors were identified as important for nontraditional students: (a) experiences in courses, (b) interests, and (c) role models.

1978

To reduce sex-role stereotyping in secondary vocational education and technical courses, the research by Cohen (1978) determined the following actions were the most successful: (a) constant vocational guidance and counseling, (b) the inclusion of career education in the curriculum at all grade levels, (c) equality of opportunity for both genders to learn about the world of work, and (d) cultural democracy practiced by the teacher in classroom management and teaching.

A national survey of women in nontraditional, mixed, and traditional occupational training at area vocational technical schools was conducted to determine the factors

that influenced women to enter nontraditional training and how they differed from those of traditional women (Kane & Frazee, 1978). It was found that women have difficulty selecting a nontraditional vocational program and that this difficulty is compounded by the pressure on women to choose academic preparation. Interest was the single most powerful force influencing women in their selection of vocational training. Second was ability in the occupational area, with earnings ranking third. Career education and job site visitation were considered more useful counseling techniques than any others. Counselors and teachers had more influence on traditional than on nontraditional women. Parents were the most influential group for nontraditional students. The largest single problem identified by women was that of men adjusting to them in the classroom, especially if there were only a few women in class.

As an aid to help secondary students become aware of and consider vocational education programs that were nontraditional for their gender, a booklet was produced for them by the Resource Center on Sex Roles in Education, National Foundation for the Improvement of Education, Washington, D.C., to question their attitudes and also learn about occupational opportunities (Matthews & McCune, 1978). Information concerning student rights to nondiscrimination and equal treatment in schools and employment was provided to help students make a free occupational decision.

1979

Using an opinion questionnaire with students, parents, and school personnel and personal interviews with secondary students, a Kentucky research study examined the extent of sex bias in vocational programs. One of the conclusions of the research pointed to students believing that they were not adequately prepared for the possible problems and barriers job seekers would experience. Among recommendations made were increased parental involvement, student orientation to legal rights relative to sex fairness in education, and an interdisciplinary approach to encourage the enrollment of nontraditional students (Richardson, Davis, & Ehresman, 1979).

Richards and Brooks (1979), in their vocational interest research of randomly selected students of six Indiana high schools, asked to which degree these students would choose nontraditional occupations if they were made aware of sex stereotypic influences through the use of resources supplied to vocational teachers and counselors. Students answered that, as useful as resources could be to teachers and counselors to help students, it was more important for sex stereotyping to be examined while studying occupational courses.

A study was completed that identified and compared the sex-role attitudes of secondary school vocational teachers, counselors, and administrators of vocational personnel in Missouri in relation to student occupational choice

(Cunningham, 1979). Conclusions indicated that males held more traditional attitudes toward sex-roles. Vocational educators in the older age category (40 to above 50) were more traditional in their thinking than were younger vocational educators. The vocational educators who had advanced degrees had more modern attitudes toward sex-roles than those who had bachelor's degrees or less. One recommendation of the study was that state department of education personnel, teacher educators, leaders of professional organizations, and others who are trying to eliminate sex stereotyping in vocational education need to be aware of the possibility of sex bias held by vocational educators and that programs should be instituted to diminish these negative attitudes.

1980s

During the 1980s, vocational education became very active in promoting gender-equity for students. The literature from this time period is so extensive that, for ease of review, it is being presented along the following themes: (a) self-awareness of sex stereotyping, (b) the role of family and peers in occupational choice, (c) the preparation of vocational education personnel for sex equity, and (d) the recruitment, retention, and placement of students into nontraditional occupations.

Self-Awareness

There could be no gender-equity in occupational education until students, parents, and communities became

aware of gender-inequality in education and employment. To that end, McClellan-Grubbs (1980) conducted research in Los Angeles, California, to determine opinions held by members of the public urban school systems so that attitudinal change could be made, if necessary. Investigated were the differential views of students, parents, teachers, counselors, and administrators concerning the equity of educational opportunities afforded females. Other areas studied were the status of women in society, the relevancy of subjects included in the curriculum, and occupational interests of various ethnic groups of students. The findings revealed that (a) females had a more egalitarian attitude toward the ideal role of women in the schools than did male students; (b) among racial groups, Asian Americans and African Americans had the least positive attitudes in their perceptions of the roles and status of women; (c) racial background and sex do interact to affect attitudes toward female students; (d) adults tend to be more supportive of adolescent female equality of education than were students; (e) high school students do differ sexually and racially in both their job preferences and social activity interests because of traditional sexual values or socioeconomic factors; and (f) students preferred more vocational education and science courses in the curriculum than did the adults. There was a slight tendency for girls to want more vocational education courses than did boys. There were no racial differences found among the students or

adults. The conclusions of the study were that (a) while some females were changing their negative attitudes about self-worth and status in society, others were afraid of animosity from males, if they did change; (b) females were beginning to increase their options by looking forward toward greater participation and involvement in nontraditional occupations; (c) socialization processes were restrictive to females and interfered with the perceptions they had about careers; (d) parents, teachers, counselors, and high school principals played crucial roles in helping female students to achieve; and (e) the urban public schools were vital for building a support base for change in the status of women. Recommendations resulting from the McClellan-Grubbs (1980) study were as follows: (a) one class in Human Relations that emphasizes cultural pluralism and feminism be a required course within the social studies curriculum for all secondary students; (b) new nonsexist teaching strategies and curriculum designs be incorporated as integral parts of the teacher, counselor, and administrator training curricula; and (c) state and federal governments use more stringent methods to enforce the equitable laws they have created.

Also in 1980, a similar study investigated gender-equity problems, related to vocational education, of high school girls in the rural areas of New Hampshire (Dunne, 1980). Conclusions of the study stated that rural high school girls faced a strong home-versus-career conflict

stemming from traditional rural values and myths about women. Girls also faced few local job opportunities, due to rural economic and value structures and to occupational sex-stereotyping. On the average, rural secondary vocational education had maintained the historically sex-stereotyped approach, tracking young women into traditionally female programs that prepared them for low-wage or no paid work. Few rural vocational education teachers actively encouraged women to compete in the male-dominated vocational programs. When women did compete, local employers and peer attitude excluded them from the job market. The study recommended that rural vocational teachers and local employers in New Hampshire be re-educated about women's potential and that sex-neutral vocational programs be established to help females develop realistic career orientations, consider nontraditional occupations, train as entrepreneurs, and use their skills for supplementary income.

In 1982, seeking to determine if affirmative action strategies had an effect on promoting nontraditional programs and course selection, an intervention project (Veres & Carmichael, 1982) was conducted among students in grades 8 and 10 from urban, suburban, and rural communities in New York. The groups, about half male and half female, were divided into a control and an experimental group. Both groups took pre- and post-tests to determine attitude toward careers, specifically towards occupations nontraditional for their gender. The experimental group was exposed to

filmstrips, class discussions, and student-parent discussions relative to sex-stereotyped attitudes. The results of the study, as determined by the post-test, provided evidence that intervention programs can create a positive change in attitudes. Males, in this research, showed the greatest change.

In 1983, through the use of questionnaires, the effect of sexist language on career choices was studied by Nicholls State University (1983) for the Louisiana State Department of Education. One questionnaire consisted of items carefully worded to be sex-neutral while the other was a sexist version. Based on the analysis of these questionnaires, the researchers concluded that communication patterns do affect career choices. When presented with a sex-neutral job situation, the respondents were most likely to select the correct outcome than when presented with a sex-biased situation. Both female and male respondents were reluctant to place workers into nontraditional roles. Based on these findings, recommendations were made calling for more study and for the evaluation of career guidance materials used in Louisiana for sexist wording.

Also, in another 1983 study, to identify factors contributing to the enrollment of male high school students in Ohio in program areas nontraditional for their gender, 90 male students, 29 teachers, and 16 counselors were interviewed in selected schools (Knight, Kouzekanani, & Lee, 1983). The males interviewed were enrolled in medical

laboratory assistant, dental assistant, diversified health, cosmetology, bank teller, child care, home furnishing, and community and home programs. Most students indicated happiness with their occupational choices, suffered little discrimination, and had chosen the programs because of interest or lack of other choices. Role models and sex-fair instructional and orientation materials were found to be significant factors in the recruitment, retention, and placement of male students in nontraditional programs. Based on this study, recommendations were made for providing all students with information about each vocational program, talking to students about job opportunities in traditionally female occupations, inviting parents to orientations concerning vocational offerings, showing males in nontraditional roles, and taking students to job sites.

In 1987, to help students ranging in age from 14 to 25 become more open-minded in regard to career options for women, and to encourage them to participate in nontraditional programs, a project was conducted in Broward County, Florida (Zylinski & Wagner, 1987). The project informed students (especially those in middle schools), parents, teachers, administrators, and the general public of the adverse effects of sex stereotyping and the advantages of nontraditional careers offered through vocational education. Results indicated that most people discarded their stereotypical thinking and plans were made to give

information on sex-equity to all students and school personnel.

Family/Peer Influence

Handley and Walker (1981) conducted a study in Mississippi to describe the relationship of the attitudes of "significant others" and other career-influencing factors to the attitudes that both traditional and nontraditional female students in vocational education have toward nontraditional work roles for men and women. Studying 406 females in high school vocational courses, the original hypothesis was supported that attitudes of "significant others"--such as parents, peers, teachers, and administrators--as well as the attitudes of the students themselves are influential in the development of work-role/sex-role attitudes of adolescent females. Attitudes of teachers, of the female subjects themselves, and of male peer groups were found to be significant discriminators between females studying in traditional programs and their peers studying in nontraditional programs. Implications of the study suggested the need for non-sex-stereotyped counseling for female students in selecting vocational courses, and perhaps parent education courses to assist parents in perceiving the broader opportunities available for women.

Seeking to identify the internal and external factors that differentiate women who enter male-traditional vocational training programs from those who enter female-

traditional programs, Houser and Garvey (1981) collected data for their study from 470 women enrolled in California vocational training programs. Approximately equal numbers of women in male- and female-dominated programs completed a questionnaire regarding (a) demographic background, (b) encouragement from others, (c) peer experiences with nontraditional programs, and (d) personality and sex-role orientation. Results revealed the student subgroups differed most significantly in the amount of support, encouragement, and discouragement they received from the "important others" in their lives.

In another study by Houser (1981) of Californian students in secondary and postsecondary vocational schools, nontraditional students were found more often to have working mothers, to have been employed more hours per week, and to be of a higher social class. They consistently received the most support to enter nontraditional fields, most often from parents and already-enrolled female students. Nontraditionals had more female friends and siblings who had experience with nontraditional vocational education. Significantly more traditionals than nontraditionals believed there were rules or restrictions limiting enrollment to men. Traditionals had a significantly greater fear of success and were more sex-typed.

Research by Kendall (1983) identified factors that a random sample of West Virginia nontraditional and

traditional secondary vocational education completers perceived as barriers in obtaining their career goals. A large majority of both samples liked their vocational experience and would choose the same program again, and also recommend the program to a friend. Nontraditional completers most often enrolled because the program interested them. Traditional completers chose the program because they wanted to learn a skill. Parents supported the respondents' vocational choices, but nontraditionals received less support and more opposition. The students themselves, vocational teachers, and parents were of most help with career choice.

In 1985, a study of the vocational literature by Young (1985) for the University of Wyoming, Department of Vocational Education, determined that though parents, peers, teachers, counselors, and siblings exert an influence on the educational and occupational decisions made by students, parents had the greatest influence. Mothers are the major influence on their daughters' career aspirations, while fathers are the primary influence on their sons' career aspirations. Because children see their parents as role models, parental encouragement or discouragement is highly significant in aiding students to select nontraditional fields. The literature indicates that the way to break down barriers keeping males and females from entering nontraditional occupations is to present parents and children with factual employment opportunity information and

inform them of the necessary skills, abilities, and aptitudes necessary for various careers. Young's research recommended that teachers, counselors, and administrators involve parents in school-based career education and guidance programs.

Preparation of Vocational Education Personnel

In the 1970s, when vocational education actively began to diminish sex-inequity in courses offered to students, it became apparent that first the attitudes of vocational educators and administrators had to change. Having accepted the "status quo" of the division of labor, vocational educators and administrators were not prepared to dissolve the division (Farmer, Sidney, Bitters, & Brizius, 1985). To offset this problem, many attempts were instituted to sensitize vocational personnel to the effects of sex bias and discrimination through monographs, handbooks, and inservice education.

In 1980, as an example of this sensitization process, Stiegler (1980) prepared a monograph designed to motivate and assist Kentucky vocational teachers in fulfilling their role in achieving sex-fair vocational education. Topics addressed were the changing roles of men and women, composition of the work force, undersupply of qualified workers for nontraditional occupations, and summary of a sex-bias analysis.

Another monograph designed by Stiegler (1980a) was prepared to motivate Kentucky guidance counselors to achieve

sex-fair vocational education. The responsibilities of the counselors were examined in reference to knowing and complying with the law, examining personal attitudes and counseling practices, screening tests for sex bias, and developing materials and resources for student and teacher use.

A handbook to eliminate sex bias and sex stereotyping and the establishment of sex fairness in vocational programs in Colorado was created by Goggans (1980). This counselor/teacher handbook provided information about the problems for teachers, and both theoretical and practical aids for eliminating sex bias in the classroom. It also provided sex-equity inservice education and guidelines for reviewing printed materials for sexism.

The status of sex-equity practices in vocational education in Florida was assessed to provide a data base of identified needs related to sex-equity (Sorg, 1980). An advisory committee had developed goal statements that described the activities vocational educators would need to be engaged in to achieve the ideal status of sex-equity in vocational education. Surveys of vocational personnel were answered to determine which goals were being difficult to obtain. Results indicated a need for inservice training for all vocational personnel to deal effectively with conflict situations that confronted nontraditional students in vocational classes and in the occupational field.

In 1981, the faculty of randomly chosen public high schools in Oregon were studied to determine the attitudes of teachers, counselors, and principals toward the issue of sex-equity (Northwest Attitudes, Inc., 1981). Some of the conclusions of the study were (a) a majority of the teachers and counselors mentioned at least one practice that discouraged male and/or female enrollment in certain vocational courses, namely, sexist comments and/or jokes by school personnel; (b) most teachers and counselors had not thought it was beneficial for male and female students to be segregated in some classes; and (c) almost half the teachers, but only one-fifth of the counselors, had believed that certain jobs were more appropriate for members of one gender.

In 1982, the way vocational and non-vocational teachers of Berks County, Pennsylvania, perceived potential employment success for nontraditional students was analyzed by Epler (1982). Data revealed that those who were the most dogmatic and sex-biased believed success would be limited for nontraditional students. Teachers with these beliefs were holders of the highest degrees. Other factors linked with bias were employment in an urban environment, and having mothers of a higher socioeconomic status. In general, teachers had perceived success for the male nontraditional students more consistently than for the females.

The Equity Goals in Occupations (EGO) project was a program of training in sex-equity issues and skills for vocational education personnel in Hawaii's public secondary schools from 1978-1982. The project was evaluated (Hawaii State Department of Education, 1984) to determine if it met its goals. Overall, the EGO training had been moderately successful in increasing awareness of sex bias among teachers and students, but somewhat less successful in increasing awareness of sex bias in the community. Little change had occurred in secondary male, female, or total nontraditional enrollment over the five years of the EGO effort. It was concluded that the project had been useful in changing attitudes, but enrollment, based on family and community influence, had not changed.

Attraction, Retention, and Employment of Students

In addition to the need for vocational education to promote sex equity, examine the part played by the family and peers in occupational choice, and prepare vocational personnel to be more sex-equity sensitive, it also was necessary to attract, retain, and find employment for students, especially those who were nontraditional. Accordingly, the vocational education community has actively sought ways to institute new and needed courses, and make students, families, and the community discard stereotypical concepts of occupations. The literature mentions numerous attempts throughout the United States to create modules, projects, programs, and public relations campaigns to

attract, retain, and find employment for nontraditional students, especially female nontraditionals. Following are some examples:

Spain (1981) created workshop materials for the National Center for Research in Vocational Education, Ohio State University. These were designed to aid recruiters of nontraditional programs to publicize their training opportunities. Information was included to convince vocational educators to recruit nontraditional students, speak effectively with journalists about program activities, and write public relations material. Emphasis was placed on the value to vocational educators that would accrue with recruitment of nontraditional students.

A model was designed for use by the Missouri secondary schools to attract females into building trades, electronics, machine shop, and welding, and to attract males into secondary health services (Good & DeVore, 1981). Activities for classroom discussions, parent meetings, and teachers' inservice training were provided to promote interest for nontraditional students.

The importance of South Carolina's counselors and job placement coordinators in helping nontraditional students was recognized with a guide created for their use (Winstead, 1981). Guidance and counseling services offered to students who considered nontraditional careers were discussed along with issues to be considered before, during, and after a student enrolled in a program. Particular problems related

to employment for nontraditional students were handled by teaching interview and job application skills to the students.

Understanding the need for close ties between vocational educators and future employers who would hire nontraditional students, a training package was created by the Office of Vocational and Adult Education in Washington, D.C., to stress the necessity for job equity to employers. Motivations of nontraditional students and the breaking down of myths and stereotypes were addressed to keep employers current on the issue of sex discrimination in the workplace (Sechler, 1981).

Shaffer (1982, 1982a, 1982b) wrote a series of manuals, for the division of Career and Adult Education in Missouri, dedicated to the retention of nontraditional students in vocational programs. These manuals were directed to support staff, vocational teachers, and administrators in order to help them in preventing nontraditional students from becoming discouraged in their occupational choices by constantly offering the students encouragement and direction.

In an effort to assist nontraditional vocational students find and keep training-related jobs, a manual was designed for use by Missouri's vocational teachers, administrators, and placement coordinators (Shaffer & Hubbs, 1982). The strategies that were used were building a relationship with employers, understanding needs of

employers, making nontraditional students useful as employees, and continual follow-ups to aid employers and students.

Continuing the effort to retain nontraditional students in vocational programs, Lydiard (1984) offered 16 suggestions that had been useful to the nontraditional students of the Minuteman Regional Vocational Technical School in Lexington, Massachusetts. Some of them were to (a) have more than one nontraditional student in a class, (b) give extra help to these students for background material they never had, (c) don't tell obscene jokes, (d) allow open discussion of tensions, (e) don't be patronizing or chivalrous, (f) establish support groups for nontraditional students, (g) make students aware of sex stereotypes, and (h) invite role models into the classroom.

In another attempt to develop and test methods to link education and industry in preparing students for nontraditional jobs, the Ysleta [Texas] Schools Vocational Equity Project was implemented (Smith, 1984). Both factual and attitudinal data were collected from educators, students, employers, and employees to accomplish the objective of employing students. The following activities and products resulted from the analysis of the data: (a) instructional units for teachers and students, (b) a media campaign to increase awareness of nontraditional workers, (c) an equal access strategy guidebook, (d) a middle school career education program, (e) a poster set

displaying nontraditional workers, and (f) a mentor-protege model that directly linked nontraditional students with employers.

As the 1980s were coming to an end, vocational researchers continued their efforts to determine the best methods to attract nontraditional students. Dahlberg, (1984) sponsored by the Texas Education Agency in Austin, studied the effects of sex bias and stereotyping on employment and earning patterns, barriers to nontraditional training, and the role of vocational education in equal access to education. Houser and Garvey (1981) and Beck (1989) continued the study of factors that effect nontraditional enrollment among women and methods that are needed to attract them, while Imel (1989) summarized the status of trends and issues that are of concern to the vocational education community relative to nontraditional occupations.

1990s

In the decade of the 1990s, vocational education is continuing to promote gender-equity. The freedom for students to choose nontraditional occupations remains its main thrust to ensure this equality. As in the past, more effort is extended to the cause of equal opportunity for females, since they still are not recipients of equality in education, employment, and wages as required by legislation and shown in this review of literature. Even recently, Van Fossen and Beck (1991) examined "the invisible walls of

discrimination" that bar the freedom of females to choose nontraditional occupations. Fortunately, these barriers can be penetrated, provided, however, that females are provided support groups and much guidance to sustain them (Stenberg & Tuchscherer, 1992).

Though proponents of vocational education consider these attempts to promote nontraditional occupations for females as being on the correct road to eventual success for both genders, critics consider them as insignificant to true equality for females. The Educational Foundation of the AAUW (American Association of University Women, 1992,) in its report "How Schools Shortchange Girls," states that unless more effort is put into the placement of females into nontraditional employment, vocational education cannot be successful in advancing them. Acknowledging that vocational education has been under the weight of trying to enforce sex-equity legislation with insufficient grant money, the report concludes that "unless we encourage girls and young women to take nontraditional courses and help place them in jobs or post-secondary institutions requiring the skills learned, any training they receive will have little effect on their labor-market opportunities" (p. 44).

These concerns are being addressed by the vocational education community of which this study is but a part.

CHAPTER III

METHODOLOGY

This is a descriptive study of two populations to determine reasons that have led students to a nontraditional vocational choice. Through the use of questionnaires both nominal and ordinal data were collected. These data were subjected to two statistical analyses: calculation of frequency distributions and the chi-square test.

Factors Studied

The researcher continued the studies relative to the effect of external and internal factors upon occupational choice (Handley & Walker, 1981; Knight, Kouzekanani, & Lee, 1983). In addition, answers to some of the research priority questions asked by Burge (1990) concerning not only external and internal factors relative to occupational choice but also the effect of intervention strategies on occupational choice were sought. Burge, agreeing that external factors, such as attitudes of parents, relatives, and school personnel, can prevent or help students in the choice of a vocational program of interest, explained the need to determine what part they played in the nontraditional choice. Accordingly, the researcher sought to discover whether these external factors had been barriers or aids.

Internal factors, within the minds of students, can also be barriers or aids to a nontraditional choice, as

reiterated by Burge. Answers were sought for the effect of internal factors upon the nontraditional choice.

Finally, Burge stated that once students had made a nontraditional choice, intervention strategies were needed to keep students within the nontraditional programs. Factors relative to intervention strategies were examined.

Research Questions

The research questions to be examined by the study were:

1. Which internal and external factors, as chosen by the nontraditional student and one of their parents or guardians, were important in the decision to study a nontraditional vocational program?

2. Is there a significant relationship between gender of the student, vocational experience of a student's sibling/s, and participation in an exploratory program and the 10 reasons that may have led to a nontraditional vocational choice?

3. Is there a significant relationship between the educational level, employment status, and economic status of the parent/guardian and the 10 reasons, as chosen by the parent/guardian, that may have led the student to a nontraditional choice?

Survey Instruments

Data for the study were obtained through two survey questionnaire instruments, one answered by the nontraditional students of 19 of the 26 Massachusetts

regional vocational technical secondary schools and the other answered by one of their parents/guardians. The questionnaires were coded to determine the rate of return, but answers to them remained anonymous both for the respondents and the schools.

The primary focus of the questionnaires was to solicit data relative to the influence of parents/guardians, peers, exploratory programs, socioeconomic backgrounds, teachers, personal interest, and guidance counselors to the choice of nontraditional occupations. Based on this focus, the researcher (a) wrote items that would measure the objectives of the focus and be pertinent to their analysis, (b) constructed the questionnaires, (c) prepared letters of transmittal, (d) determined methods of distribution of the questionnaires, and (e) planned follow-ups to increase the rate of returns. The researcher was aided in this endeavor by assistance from the counselors in the guidance department of his employer, the Tri-County Regional Vocational Technical School in Franklin, Massachusetts.

Upon completion of the questionnaires, the instruments were pre-tested for reliability by giving them to the nontraditional students of Tri-County, along with one of their parents/guardians. When the questionnaires were answered during the pre-test, respondents were asked to identify questions that were not understood so that they could be revised by the researcher until ambiguities were removed (finalized questionnaires are shown in Appendix A).

The survey questionnaire instruments were written in a language to be easily understood by the nontraditional vocational students and one of their parents or guardians. As much as possible, professional educational jargon was omitted from the questionnaires.

Student Questionnaire

Questions 1 to 4 dealt with the demographics of the student. Information concerning the following were asked for: year of schooling, age, gender, and person lived with.

Questions 5 to 15 solicited the following information: number of siblings who studied or are studying vocational education, vocational program majored in, effect of the exploratory program, change of major and reason, parent/guardian attitude, discrimination by other students, and satisfaction with vocational choice.

Questions (statements) 16 to 25 were arranged on a Likert-type scale and students were asked to chose the importance of each reason that may have led them to a nontraditional choice. Statement 24, "Teachers in the exploratory program were great," was purposely written in vernacular form. The researcher had discovered, through the pre-test of the survey instruments, that both students and parents/guardians more readily understood the statement to imply the educational impact of the teachers of the exploratory program to the choosing of a nontraditional vocation.

Parent/Guardian Questionnaire

Questions 1 to 11 sought demographic information about the parent/guardian. Responses to the following were asked for: sex and age, relationship with student, occupational history and household salary, level of education, and ethnic origin and primary language spoken at home.

Questions 12 to 15 were concerned with parent's or guardian's happiness with student's nontraditional choice, influence of parent/guardian on nontraditional choice, and parent's/guardian's feeling toward success for the child.

Questions (statements) 16 to 25 were arranged on a Likert-type scale and asked the parent/guardian to choose the importance of each reason that may have led to a nontraditional choice for their child.

Populations Surveyed

When the study was conducted during the month of January, 1993, there were 26 regional vocational technical secondary high schools in Massachusetts that offered vocational programs funded through Chapter 74 of the Massachusetts General Laws on Education (legislation that detailed the regulations established by Massachusetts for vocational education programs). These were public schools, from grades 9-12, which offered both academic knowledge and specific vocational or technical skills in one program. The specific skills for a variety of occupations fell under the following headings: agriculture, distributive education (marketing), home economics, health, office, technical, and

trade/industry. The schools were financially supported, in part, by cities or towns comprising a district from which the student enrollment was obtained. These students were transported to the regional schools by buses.

Most students of the regional vocational technical schools were not planning to enter college after completing high school, but, rather, wished to learn a job-entry skill for immediate employment upon graduation. Some students were majoring in nontraditional vocational and technical programs for their gender. Of the 26 regional vocational technical schools in Massachusetts contacted to participate in the study, 19 returned forms, signed by the superintendent of each school, verifying agreement to have their nontraditional students take part in this survey. These students, and one of their parents/guardians were the two populations that were surveyed to ascertain which factors were most responsible for the students' choice of a nontraditional occupation to study.

The 19 participating schools were randomly assigned an alphabetical letter in order to maintain anonymity for the research. Some of the schools returned questionnaires completed by ninth grade students and their parents or guardians. Upon review of these questionnaires, it was determined that many of the ninth grade students were presently exploring nontraditional occupations and not majoring in them. Because it was the intent of the study to determine factors that led to the choosing of a

nontraditional vocational occupation to major in, all responses of the ninth grade students and those of their parents/guardians were discarded because there was no way to ascertain which ninth grade students were exploring a nontraditional field or majoring in it. Appendix B shows the alphabetical listing of the participating schools that returned 565 survey questionnaires. This resulted in 280 student and 149 parent/guardian usable questionnaires after excluding those from the ninth grade students and their parents/guardians.

Administration of the Survey

The superintendent of the Tri-County Regional Vocational Technical School in Franklin, Massachusetts, notified the superintendents of the 26 regional vocational technical schools within Massachusetts relative to the study. A letter was sent explaining the purpose of the study and requested the aid of both the superintendents and the directors of their guidance departments in distributing and collecting the questionnaires given to the nontraditional students and one of their parents/guardians (see Appendix C). A liaison for each school was selected as a connector between the researcher and the successful completion of the study.

The nontraditional students answered the questionnaires during school time and on school grounds. The questionnaire devised for one of the parents/guardians was hand-delivered

to them by the nontraditional student and was returned to the school liaison in a sealed envelope.

Based on a code to determine anonymous respondents who had not answered the questionnaires, the following was done by the liaison of each school: (a) Nontraditional students who were absent when the questionnaire was first administered were given at least two more opportunities for their input; (b) Additional questionnaires were given to students to solicit information from parents/guardians who had not answered the first questionnaire; and (c) In all, at least three attempts were made to gain input from both the nontraditional students and their parents/guardians who had not responded to the original questionnaires.

The completed questionnaires were returned by the liaisons to the researcher who randomly assigned each school an alphabet letter from "A" to "S" to maintain anonymity of the participating schools. The questionnaires were then subjected to a statistical analysis using frequency distributions and chi-square tests. Through the use of these two statistical methods applied to the 25 items on the questionnaires given to both of the populations, the study sought to predict which determinants were most likely to lead to a student's nontraditional vocational choice.

Analysis of Data

The SPSS (Statistical Package for Social Sciences) was selected for statistical analysis. Frequency distributions

were calculated and chi-square was used to test for statistical significance.

Frequency distributions were prepared for responses to the questionnaires administered to both students and one of their parents/guardians to determine the number of times the same response to a question or statement occurred. For the student questionnaire, questions 1 to 15 examined the following factors relative to a nontraditional choice: a) gender of student; (b) sibling's experience of vocational education; (c) vocational programs attracting the most nontraditional students; (d) vocational program is the original choice, or different; (e) an exploratory program was/was not offered; (f) the parent/guardian attitude toward nontraditional choice; (g) the nontraditional student has others of the same gender studying the vocational program; (h) discrimination shown because of nontraditional choice; and (i) contentment level of nontraditional student. A frequency distribution also was made of statements 16 to 25 to determine where the responses fell on the Likert-type scale, and in what percentage. Of particular concern was whether students made the nontraditional choice because of external or internal factors. External factors were determined by responses to the following statements: (a) Friends talked me into it; (b) I wanted to be with friends in the same vocational program; (c) Someone else made the decision; (d) Parent, guardian, friend, sister, or brother is in the same business or trade; (e) The program

seemed easy; and (f) I didn't like any other vocational program offered. Internal factors were determined by responses to the following statements: (a) The vocational program looked like a good career opportunity; (b) The trade or business has always interested the student; (c) The exploratory program made the student interested; and (d) The teachers of the exploratory program aided the student's interest in the nontraditional career.

For the parent/guardian questionnaire, a frequency distribution was prepared for all the responses. Questions 1 to 11 were concerned with the following demographic variables of the parent/guardian: (a) gender; (b) age; (c) relationship with student; (d) length of time of the relationship; (e) economic status; (f) educational status; and (g) ethnic origin. Questions 12 to 15 sought to determine the influence and attitude of the parent/guardian relative to the nontraditional choice by asking the following: (1) Did you suggest to your child to study this nontraditional choice? (2) Are you happy with your child's nontraditional choice? (3) What do you think is the chance of success for your child in this nontraditional field?, and (4) Which vocational program is your child majoring in? Statements 16 to 25 were arranged on a Likert-type scale and asked the parent/guardian to determine how important each statement was to the child's nontraditional choice. Of particular concern was whether the parent/guardian considered external or internal factors as the most

important determinants that led to the choice. External factors were shown by responses to the following statements: (a) Child's friends talked her/him into the vocational program.; (b) Student wanted to be with friends in the nontraditional program; (c) Parent, guardian, friend, sister, or brother is in the same business or trade; (d) Someone else made the decision for the student; (e) The vocational program seemed easy; and (f) Student didn't like any other vocational program offered. Internal factors were determined by responses to the following statements: (a) Vocational program looked like a good career opportunity; (b) Trade or business has always interested the student; (c) Exploratory program made the student interested in the career; and (d) Teachers of the exploratory program made the student interested in the career.

A chi-square analysis was made of three independent variables relative to the student and parent/guardian regarding the importance of 10 reasons leading to a nontraditional choice (dependent variables). The chi-square test helped to demonstrate whether a relationship existed between these variables by computing the cell frequencies that would be expected if no relationship existed. These expected frequencies were then compared to the actual frequencies observed. The greater the discrepancies between the expected and observed frequencies, the larger the chi-square became, indicating a relationship between the variables. The three independent variables chosen from the

student questionnaire were (a) sex of the student; (b) sibling's experience with vocational education; and (c) student's exposure to an exploratory program. The three independent variables chosen from the parent/guardian questionnaire were: (a) level of education; (b) employment status; and (c) economic status. The chi-square analysis was performed with these six variables and the 10 reasons that may have led to a nontraditional choice.

CHAPTER IV

FINDINGS

The data resulting from the student and parent/guardian questionnaire survey instruments used for the study were analyzed through the use of SPSS (Statistical Package for Social Sciences). Frequency distributions were calculated and subjected to the chi-square test. Answers were sought for the following research questions:

1. Which internal and external factors, as chosen by the nontraditional student and one of their parents or guardians, were important in the decision to study a nontraditional vocational program?

2. Is there a significant relationship between gender of the student, vocational experience of a student's sibling(s), and participation in an exploratory program and the 10 reasons that may have led to a nontraditional vocational choice?

3. Is there a significant relationship between the educational level, employment status, and economic status of the parent/guardian and the 10 reasons, as chosen by the parent/guardian, that may have led the student to a nontraditional choice?

Frequency Distribution

Frequency distributions were calculated to determine the number of times the same response to a variable occurred. Following are the findings, presented in text and

tables, of the frequency distributions resulting from responses to both the student and parent/guardian questionnaires.

Student Responses

The majority of the 280 nontraditional students who participated in this study were in the sophomore year of high school (N=130) at the average age of 16 (N=113) and predominantly female (N=249), as shown in Tables 1, 2, and 3.

Table 1

High School Grade Level of Student Respondents

Grade Level	Frequency	Percent
Sophomore	130	46.4
Junior	93	33.2
Senior	56	20.0
No Response	1	.4
Total	280	100.0

Table 2

Age of Nontraditional Students

Age	Frequency	Percent
15	52	18.6
16	113	40.4
17	89	31.8
18	18	6.4
19	5	1.8
20	2	.7
No Response	1	.4
Total	280	100.0

Table 3

Gender of Student

Sex	Frequency	Percent
Female	249	88.9
Male	30	10.7
No Response	1	.4
Total	280	100.0

The data presented in Table 4 indicate that 55% (N=154) of the students had come from two-parent families while 32% (N=89) had experienced a long-term relationship only with one parent.

Table 4

Long-term Family Relationship

Response	Frequency	Percent
One parent	89	31.8
Two parents	154	55.0
Parent and guardian	30	10.7
Others	5	1.8
No response	2	.7
Total	280	100.0

The distribution data, shown in Table 5, reveal that 48% (N=135) of the nontraditional students had no sibling who had attended a vocational school, whereas 21% (N=58) had siblings who were presently in a vocational program and 20% (N=57) had siblings who had graduated from a vocational school.

Table 5

Vocational Experience of Sibling(s)

Response	Frequency	Percent
In vocational school now	58	20.7
Graduated from vocational school	57	20.4
None	135	48.2
More than one response	12	4.3
No response	18	6.4
Total	280	100.0

Drafting was the course with the highest percentage of nontraditional students (N=59) followed by Auto Mechanics (N=39) and Electrical/Electronics (N=28), as presented in Table 6.

Table 6

Vocational Major

Response	Frequency	Percent
Drafting	59	21.1
Auto Mechanics	39	13.9
Electrical/Electronics	28	10.0
Graphics/Offset	24	8.6
Cabinet/Carpentry	23	8.2
Machine Shop	19	6.8
Major Appliances	19	6.8
Painting/Decorating	19	6.8
Health Services	17	6.1
Horticulture	13	4.6
Home Ec./Child Care	8	2.9
Business	6	2.1
Marine/Related Services	4	1.4
No response	2	.7
Total	280	100.0

The majority of the nontraditional students were not studying a vocational program that was their originally intended major when they enrolled in a vocational technical high school (N=174; 62%). These data are shown in Table 7.

Table 7

Intended Major Studied

Response	Frequency	Percent
Yes	102	36.4
No	174	62.1
No response	4	1.4
Total	280	100.0

It was found that 41% (N=115) of the students had experienced an exploratory program in what became their nontraditional vocational major, whereas 29% (N=81) had explored vocational areas other than what became their major. Of the 280 students participating in this study, 21% (N=58) had not had any exploratory program experience (see Table 8).

Table 8

Exploratory Program Experience

Response	Frequency	Percent
Explored major	115	41.1
Explored other	81	28.9
No	58	20.7
More than one response	20	7.1
No response	6	2.1
Total	280	100.0

As shown in Table 9, the majority of the students stated that they had not changed their nontraditional program after deciding to major in it (N=213, 76%).

Table 9

Change of Major

Response	Frequency	Percent
Yes	65	23.2
No	213	76.1
No response	2	.7
Total	280	100.0

Those students who had changed their original nontraditional major were asked to write out a response for the reason. Of the 65 students who had changed their major, 62 responded. Predominantly, the reasons were either "Boredom with the course" and (or) "Dislike for the teachers." These data are shown in Table 10.

Table 10

Reason for Change

Response	Frequency	Percent
"Boredom with the course" and(or) "Dislike for the teachers"	62	22.1
No response	218	77.9
Total	280	100.0

Of the student respondents, 93% (N=260) believed that their parent(s)/guardian(s) were happy with their nontraditional vocational choice, as shown in Table 11.

Table 11

Student Belief of Parents'/Guardians' Satisfaction

Response	Frequency	Percent
Yes	260	92.9
No	12	4.3
More than one response	1	.4
No response	7	2.5
Total	280	100.0

The data in Table 12 reveal that 88% (N=247) of the nontraditional students had at least one student of the same gender, in their year of high school or another, studying the nontraditional program with them.

Table 12

Students of Same Gender in Program

Response	Frequency	Percent
Yes	247	88.2
No	33	11.8
Total	280	100.0

When students were questioned about harassment by other students of either gender because of their nontraditional choice, 94% (N=263) said they had experienced no harassment from their own gender; whereas, 80% (N=223) said they had

experienced no harassment from the opposite gender. See Tables 13 and 14.

Table 13

Same-Gender Harassment

Response	Frequency	Percent
Yes	16	5.7
No	263	93.9
No response	1	.4
Total	280	100.0

Table 14

Opposite-Gender Harassment

Response	Frequency	Percent
Yes	51	18.2
No	223	79.6
No response	6	2.1
Total	280	100.0

As shown in Table 15, 3% (N=7) of the students were not satisfied with their nontraditional vocational program choice, whereas 83% (N=231) were satisfied "Most of the time." Fifteen percent (N=41) were satisfied "Some of the time."

Table 15

Student Satisfaction With Vocational Program

Response	Frequency	Percent
Most of the time	231	82.5
Some of the time	41	14.6
No	7	2.5
No response	1	.4
Total	280	100.0

As the data reveal in Table 16, 84% (N=234) of the students responded to Statement 16, "My friends talked me into it" as a "Not important" reason for the nontraditional choice.

Table 16

Peer Influence in Nontraditional Choice

Response	Frequency	Percent
Very important	3	1.1
Somewhat important	40	14.3
Not important	234	83.6
No response	3	1.1
Total	280	100.0

When questioned as to whether the nontraditional program was chosen because of its career potential, 61% (N=171) responded that the reason had been "Very important." Of the remaining respondents, 34% (N=94) said that reason had been "Somewhat important," whereas only 4% (N=12) considered the reason as "Not important." See Table 17.

Table 17

Career Potential of the Nontraditional Program

Response	Frequency	Percent
Very important	171	61.1
Somewhat important	94	33.6
Not important	12	4.3
No response	3	1.1
Total	280	100.0

The majority of the students (73%, N=205) stated that they were not influenced to study a nontraditional program because "Significant others" (such as parents or guardians, siblings, or friends) were in the same business or trade, as reported in Table 18.

Table 18

Influence of "Significant Others" to Nontraditional Choice

Response	Frequency	Percent
Very important	13	4.6
Somewhat important	55	19.6
Not important	205	73.2
No response	7	2.5
Total	280	100.0

The data in Table 19 reveal that having always had some interest in the subject matter of the nontraditional field they were studying before they made the decision to major in it was "Very important" (N=112, 40%) for some students while others responded that the reason was "Somewhat important" (N=117, 42%).

Table 19

Prior Interest in Nontraditional Subject Matter

Response	Frequency	Percent
Very important	112	40.0
Somewhat important	117	41.8
Not important	43	15.4
Total	280	100.0

When students were asked if they had chosen a nontraditional program to study because they wanted to be with their friends in the same program, 2% (N=6) responded that this was a "Very important" reason. On the other hand, 43% (N=119) said the reason was "Somewhat important" and 52% (N=146) said the reason was "Not important." See Table 20.

Table 20

Companionship of Peers in Nontraditional Program

Response	Frequency	Percent
Very important	6	2.1
Somewhat important	119	42.5
Not important	146	52.1
No response	9	3.2
Total	280	100.0

It was found that 85% (N=239) of the students stated that the decision to study a nontraditional program was not made for them by "Significant others" such as parents or guardians and (or) guidance counselors, as shown in Table 21.

Table 21

Decision Made by "Significant Others"

Response	Frequency	Percent
Very important	10	3.6
Somewhat important	23	8.2
Not important	239	85.4
No response	8	2.9
Total	280	100.0

When students were asked if they chose their nontraditional program to study because it seemed easy, 55% (N=155) said that they considered that reason "Not important" and 37% (N=103) stated it was "Somewhat important." These data are presented in Table 22.

Table 22

Ease of Program

Response	Frequency	Percent
Very important	13	4.6
Somewhat important	103	36.8
Not important	155	55.4
No response	9	3.3
Total	280	100.0

Questions (statements) 23 and 24 of the student survey instrument asked the students to determine the importance of (a) an exploratory program, and (b) the teachers of the exploratory program on their decision to major in the field. Of the 280 students who answered the questionnaire, 58 (21%) had not experienced an exploratory program (see Table 8). Students who had not experienced an exploratory program were

instructed to answer statements 23 and 24 as "Not important." The final results of the student responses were that 53% (N=149) considered the exploratory program as "Very important" to their nontraditional choice, whereas 21% (N=58) stated that the exploratory program was "Somewhat important." Twenty-three percent (N=63) believed the exploratory program was "Not important" to their choice. See Table 23.

Table 23

Influence of the Exploratory Program

Response	Frequency	Percent
Very important	149	53.2
Somewhat important	58	20.7
Not important	63	22.5
No response	10	3.6
Total	280	100.0

The influence of the teachers of the exploratory program was considered by 39% (N=109) of the students as "Very important" to their choice, whereas 33% (N=92) believed the teachers were "Somewhat important." Twenty-five percent (N=69) considered the teachers of the exploratory program as "Not important" to their final decision. See Table 24.

Table 24

Influence of the Exploratory Program Teachers

Response	Frequency	Percent
Very important	109	38.9
Somewhat important	92	32.9
Not important	69	24.6
No response	10	3.6
Total	280	100.0

As shown in Table 25, 49% (N=137) of the students stated that their dislike of the other vocational programs offered by their regional vocational technical schools was a "Not important" reason for their nontraditional choice. Of the remaining respondents, 40% (N=111) said this reason was "Somewhat important," whereas 9% (N=24) considered the reason as "Very important" to their final decision.

Table 25

Relationship of Disinterest in Other Programs to Final Choice

Response	Frequency	Percent
Very important	24	8.6
Somewhat important	111	39.6
Not important	137	48.9
No response	8	2.9
Total	280	100.0

Parent/Guardian Responses

The 149 respondents to the parent/guardian survey instrument were primarily female (N=85, 79%) and between the ages of 30 to 40 years old (N=85, 57%). The majority were

mothers (N=110, 74%) or fathers (N=25, 17%) of the nontraditional students and had lived with their child since birth (N= 97, 65%). See Tables 26, 27, 28, and 29.

Table 26

Gender of Parent/Guardian

Response	Frequency	Percent
Female	118	79.2
Male	31	20.8
Total	149	100.0

Table 27

Age of Parent/Guardian

Response	Frequency	Percent
Less than 30 years old	8	5.4
30-40 years old	85	57.0
41-50 years old	50	33.6
More than 50 years old	5	3.4
More than one response	1	.7
Total	149	100.0

Table 28

Relationship with Student

Response	Frequency	Percent
Mother	110	73.8
Female guardian/stepparent	6	4.0
Father	25	16.8
Male guardian/stepparent	3	2.0
Relative or other	4	2.7
No response	1	.7
Total	149	100.0

Table 29

Length of Time of Parent/Guardian Relationship with Student

Response	Frequency	Percent
Entire life	97	65.1
Less than entire life	36	10.7
No response	16	24.2
Total	149	100.0

The question on the parent/guardian survey instrument asking for the employment status of the respondent caused confusion to the parents/guardians. The researcher had anticipated that only those possessing a minimum of a bachelor's degree needed for their employment would have answered that they were employed in a "Professional" status (see Definitions of Terms). However, many tradespersons are instructed, as part of their training, to consider themselves as professionals, consequently, 58 out of 149 respondents (39%) identified themselves as "Employed professionals," whereas 29% (N=43) identified themselves as "Employed tradesmen," (See Table 30.) This discrepancy became apparent when the researcher examined the responses to questions concerning the type of work performed by the respondents (Table 31), the yearly family income (Table 32), and the highest level of education obtained by the respondents (Table 34).

Table 30

Employment Status of Parent/Guardian

Response	Frequency	Percent
Employed professional	58	38.9
Employed tradesman	43	28.9
Unemployed	32	21.5
Disabled	1	.7
Retired	2	1.3
No response	13	8.7
Total	149	100.0

Table 31

Type of Work Performed by Parent/Guardian

Response	Frequency	Percent
Management/clerical	24	16.1
Human services	15	10.1
Restaurant services	15	10.1
Labor	13	8.7
Miscellaneous	11	7.4
Stores	10	6.7
Blue collar	9	6.0
Electronics	5	3.4
Transportation	5	3.4
No response	42	28.2
Total	149	100.0

The distribution data presented in Table 32, show that 38% (N=56) of the 149 respondents stated that their yearly family income was over $30,000; whereas, 30% (N=45) claimed $20,000 to $30,000, and 20% (N=30) said their income was less than $20,000.

Table 32

Yearly Family Income of Parent/Guardian

Response	Frequency	Percent
Above $30,000	56	37.6
$20,000 to $30,000	45	30.2
Below $20,000	30	20.1
No response	18	12.1
Total	149	100.0

When asked if the respondent had completed a grade school education, 89% (N=132) stated that they had (see Table 33).

Table 33

Parent/Guardian Completion of Grade School

Response	Frequency	Percent
Yes	132	88.6
No	17	11.4
Total	149	100.0

After completion of grade school, 48% (N=71) of the parents/guardians had attended a non-vocational/trade high school whereas 20% (N=30) had attended a vocational/trade high school. College or other education after high school had been experienced by 17% (N=25) of the respondents, as shown in Table 34.

Table 34

Highest Level of Education of Parent/Guardian

Response	Frequency	Percent
Non-vocational/trade high school	71	47.7
Vocational/trade high school	30	20.1
College or other	25	16.8
More than one response	5	3.4
No response	18	12.1
Total	149	100.0

Data in Tables 35 and 36 reveal that the respondents spoke primarily English at home (N=139, 93%) and were of white non-hispanic ethnic background (N=118, 79%).

Table 35

Primary Home Language of Parent/Guardian

Response	Frequency	Percent
English	139	93.3
Spanish	4	2.7
Portuguese	2	1.3
French	1	1.7
More than one response	1	.7
No response	2	1.3
Total	149	100.0

Table 36

Ethnic Background of Parent/Guardian

Response	Frequency	Percent
White Non-Hispanic	118	79.2
White Hispanic	18	12.1
Non-white Hispanic	2	1.3
Asian/Pacific Islander	1	.7
Black Non-Hispanic	1	.7
Indian American or Alaskan	1	.7
More than one response	1	.7
No response	7	4.7
Total	149	100.0

It was found that 92% (N=137) of the parents/guardians were satisfied with their child's nontraditional vocational choice and 74% (N=110) had not suggested the area of study to their child. See Tables 37 and 38.

Table 37

Parent/Guardian Satisfaction with Child's Nontraditional Choice

Response	Frequency	Percent
Yes	137	91.9
No	7	4.7
More than one response	1	.7
No response	4	2.7
Total	149	100.0

Table 38

Parent/Guardian Suggested Nontraditional Program to Child

Response	Frequency	Percent
Yes	36	24.2
No	110	73.8
No response	3	2.0
Total	149	100.0

The parents/guardians believed that the chance for success for their child in studying the nontraditional program was predominantly "Very good" (45%, N=67) or "Good" (38%, N=56), as shown in Table 39.

Table 39

Parent/Guardian Belief of Chance for Success for Child in Nontraditional Program

Response	Frequency	Percent
Very good	67	45.0
Good	56	37.6
Fair	19	12.8
Poor	5	3.4
Total	149	100.0

As the data reveal in Table 40, all the respondents correctly identified the nontraditional subject their children were studying.

Table 40

Child's Nontraditional Vocational Major

Response	Frequency	Percent
Drafting	31	20.3
Auto Mechanics	23	15.4
Electrical/Electronics	18	12.1
Graphics/Offset	13	8.7
Major Appliances	13	8.7
Health Services	12	8.1
Machine Shop	12	8.1
Horticulture	10	6.7
Carpentry/Cabinet	8	5.4
Marine and Related Services	3	2.0
Home Ec./Child Care	2	1.3
Painting/Decorating	1	.7
No response	3	2.0
Total	149	100.0

The last 10 questions (statements) on the parent and guardian questionnaire were similar to those on the student's questionnaire. The purpose was to determine the value that the parent/guardian placed on the 10 possible reasons that may have led their child to a nontraditional choice.

When questioned as to the importance of the child studying a nontraditional subject because of having been talked into it by the child's friends, 80% (N=119) considered the statement as "Not important," while 12% (N=18) considered it "Somewhat important." See Table 41.

Table 41

Influence of Child's Peers As Reason for Nontraditional Choice

Response	Frequency	Percent
Very important	4	2.7
Somewhat important	18	12.1
Not important	119	79.9
No response	8	5.4
Total	149	100.0

The distribution data shown in Table 42 indicate that 58% (N=87) of the parents/guardians believed that the career opportunity aspect of the vocational program was "Very important" to the child's choice, while 35% (N=52) considered it "Somewhat important."

Table 42

Influence of "Career Opportunity" to Nontraditional Choice

Response	Frequency	Percent
Very important	87	58.4
Somewhat important	52	34.9
Not important	4	2.7
No response	6	4.0
Total	149	100.0

Data presented in Table 43 reveal that 74% (N=110) of the respondents believed the child was not influenced into studying the nontraditional program because of knowing others in the same business or trade.

Table 43

Influence of Knowing "Others in the Field" to the Nontraditional Choice

Response	Frequency	Percent
Very important	9	6.0
Somewhat important	23	15.4
Not important	110	73.8
No response	7	4.7
Total	149	100.0

As shown in Table 44, 38% (N=56) of the respondents believed that always having had an interest in the subject matter of the nontraditional program was "Very important" to the child's choice, whereas 35% (N=52) stated it was "Somewhat important."

Table 44

Influence of Prior Vocational Interest of the Child

Response	Frequency	Percent
Very important	56	37.6
Somewhat important	52	34.9
Not important	36	24.2
No response	5	3.4
Total	149	100.0

When questioned as to whether the student majored in a nontraditional program because of wanting to be with friends, 82% (N=122) of the respondents stated that this reason was "Not important." Their responses are shown in Table 45.

Table 45

Importance of Peer Companionship in Vocational Program

Response	Frequency	Percent
Very important	5	3.4
Somewhat important	17	11.4
Not important	122	81.9
No response	5	3.4
Total	149	100.0

When asked if their child became a nontraditional student because the decision was made by "Significant others," such as parents/guardians and (or) guidance counselors, 77% (N=115) of the respondents stated that this was a "Not important" reason for the choice. See Table 46.

Table 46

Decision Made by "Significant Others"

Response	Frequency	Percent
Very important	13	8.7
Somewhat important	16	10.7
Not important	115	77.2
No response	5	3.4
Total	149	100.0

The majority of the respondents (78%, N=116), when asked how important the ease of study of the nontraditional program was to the choice of the major for their child, stated that this reason was "Not important," while 14% (N=21) considered the reason "Somewhat important." See Table 47.

Table 47

Ease of Program for the Child

Response	Frequency	Percent
Very important	7	4.7
Somewhat important	21	14.1
Not important	116	77.9
No response	5	3.4
Total	149	100.0

Similar to the questions (statements) on the student questionnaire, the parent/guardian was asked to determine the importance of (a) the exploratory program, and (b) the teachers of the exploratory program to the child's nontraditional choice. The parent/guardian whose child had not experienced an exploratory program was informed to check off "Not important" to both (a) and (b) above.

Nearly one-half (49%, N=73) of the parents/guardians considered the exploratory program as a "Very important" reason for the nontraditional choice whereas 20% (N=29) considered it "Somewhat important." Only 26% (N=38) considered the exploratory as "Not important," as shown in Table 48.

Table 48

Child's Exploratory Program

Response	Frequency	Percent
Very important	73	49.0
Somewhat important	29	19.5
Not important	38	25.5
No response	9	6.0
Total	149	100.0

Data presented in Table 49 show that 40% (N=59) of the respondents stated that the teachers of the exploratory program were "Very important" to the nontraditional choice whereas 29% (N=43) considered the teachers as "Somewhat important." The other respondents (26%, N=38) stated that the teachers were "Not important" to the child's choice.

Table 49

Child's Exploratory Program Teachers

Response	Frequency	Percent
Very important	59	39.6
Somewhat important	43	28.9
Not important	38	25.5
No response	9	6.0
Total	149	100.0

When questioned about how the child's dislike for the other vocational programs offered by the school may have been a reason for the nontraditional choice, 51% (N=76) of the parents/guardians stated that this reason was "Not important," whereas 29% (N=43) considered the reason

"Somewhat important." The remaining respondents (29%, N=22) of the parents/guardians considered the reason as "Very important." See Table 50.

Table 50

Importance of Child's Dislike for Other Vocational Programs

Responses	Frequency	Percent
Very important	22	14.8
Somewhat important	43	28.9
Not important	76	51.0
No response	8	5.4
Total	149	100.0

Chi-Square Test

The second statistical method employed in the study was the chi-square test. Three independent variables associated with the student and three associated with the parent/guardian were related to the responses concerning the importance of the 10 reasons that may have led to a nontraditional choice (dependent variables) as determined by the students and parents/guardians. The resulting observed cell frequencies of the responses were compared to the expected frequencies. The greater the discrepancies between the observed frequencies and the expected frequencies, the larger the chi-square coefficient and the more likely the relationship between the variables was statistically significant.

The three independent student variables were gender of the student, vocational experience of a student's sibling(s), and participation in an exploratory program.

The three independent parent/guardian variables were educational level, employment status, and economic status.

Student Chi-Square Results

The statistically significant results are reported in the following paragraphs. For a complete listing of the results of the chi-square test of the student independent variables, both significant and not significant, see Appendix D.

There was a significant relationship ($p \leq .05$) between the independent variable "Sex of student" and Statement 17, "The vocational program looked like a good career opportunity." Only 5% (N=12) of the 249 female respondents considered the statement "Not important." None of the male students (N=30) considered the statement "Not important" (see Table 51).

Table 51

Frequency Distribution of Responses to Statement 17, "The vocational program looked like a good career opportunity" by Sex of Student

Sex of student	NR	VI	SI	NI	Total
Female	3	144	90	12	249
Male		27	3		30
No Response			1		1
Total	3	171	94	12	280

$X^2(6, N=280)=13.787$ Significant at $p \leq .05$ level.
NR= No Response
VI= Very Important
SI= Somewhat Important
NI= Not Important

The chi-square test of the independent variable "Vocational experience of sibling(s)" was related to Statement 20, "I wanted to be with my friends in the same program," and was significant at the .05 level. Regardless of whether the nontraditional student had a sibling with vocational experience, 52% (N=146) considered the statement "Not important" to their vocational choice, whereas 43% (N=119) considered the statement "Somewhat important." Only 2% (N=6) of the 280 students considered the statement to be "Very important" to their occupational choice (see Table 52).

Table 52

Frequency Distribution of Responses to Statement 20, "I wanted to be with my friends in the same program" by Vocational Experience of Sibling/s

Vocational Experience of Sibling/s	NR	VI	SI	NI	Total
None	2		61	72	135
In vocational program now	3	2	21	32	58
Graduated from a vocational program	3	2	23	29	57
More than one response		2	3	7	12
No response	1		11	6	18
Total	9	6	119	146	280

$X^2(12, N=280)=24.067$ Significant at $p \leq .05$ level.
NR= No Response
VI= Very Important
SI= Somewhat Important
NI= Not Important

When the independent variable "Participation in exploratory program" was related to Statement 19, "Trade or business has always interested me," the resulting chi-square value was significant at the .05 level. Only 15% (N=43) of the 280 respondents considered the statement "Not important" to their participation in an exploratory program (see Table 53).

Table 53

Frequency Distribution of Responses to Statement 19, "Trade or business has always interested me" by Participation in Exploratory Program

Participation in Exploratory Program	NR	VI	SI	NI	Total
No		30	23	5	58
Explored trade I'm studying	4	47	42	22	115
Explored other trade	3	29	36	13	81
More than one response		3	15	2	20
No Response	1	3	1	1	6
Total	8	112	117	43	280

$X^2(12, N=280)=22.573$ Significant at $p \leq .05$ level.
NR= No Response
VI= Very Important
SI= Somewhat Important
NI= Not Important

The relationship of the independent variable "Participation in an exploratory program" to Statement 23, "The exploratory program made me interested in the career," resulted in a chi-square value at the .01 level. Of the 280 respondents, 53% (N=149) considered the statement "Very important," whereas 21% (N=58) considered it "Somewhat important." The statement was considered "Not important" by 23% (N=63) of the respondents (see Table 54).

Table 54

Frequency Distribution of Responses to Statement 23, "The exploratory program made me interested in the career" by Participation in Exploratory Program

Participation in Exploratory Program	NR	VI	SI	NI	Total
No	2	7	5	44	58
Explored trade I'm studying	4	70	31	10	115
Explored other trade	3	55	15	8	81
More than one response		14	6		20
No response	1	3	1	1	6
Total	10	149	58	63	280

$X^2(12, N=280)=128.473$ Significant at $p \leq .01$ level.
NR= No Response
VI= Very Important
SI= Somewhat Important
NI= Not Important

The relationship of the independent variable "Participation in an exploratory program" to Statement 24, "Teachers in the exploratory program were great," resulted in a chi-square value significant at the .01 level. Of the 280 respondents, 39% (N=109) considered Statement 24 as "Very important," whereas 33% (N=92) considered it "Somewhat important." Other respondents (25%, N=69) considered the statement "Not important" (see Table 55).

Table 55

Frequency Distribution of Responses to Statement 24, "Teachers in the exploratory program were great" by Participation in Exploratory Program

Participation In Exploratory Program	NR	VI	SI	NI	Total
No	2	5	14	37	58
Explored trade I'm studying	4	56	42	13	115
Explored other trade	3	37	28	13	81
More than one response		8	8	4	20
No response	1	3		2	6
Total	10	109	92	69	280

$X^2(12, N=280)=72.581$ Significant at $p \leq .01$ level.
NR= No Response
VI= Very Important
SI= Somewhat Important
NI= Not Important

Parent/Guardian Chi-Square Results

The three independent variables chosen from the parent/guardian questionnaire were level of education, employment status, and economic status. These were related to the 10 reasons that may have led to a nontraditional vocational choice for their child. There was only one significant value resulting from the chi-square test. This was between the independent parent/guardian variable "Employment status" and Statement 22, "The program seemed easy." Regardless of employment status, only 5% (N=7) of the 149 parent/guardian respondents considered the ease of a nontraditional program as "Very important" to the choice for

their child. Of the remaining respondents, 14% (N=21) considered the ease of the program as "Somewhat important," whereas 78% (N=116) considered it as "Not important" (see Table 56). For a complete listing of the results of the chi-square test on the parent/guardian independent variables refer to Appendix E.

Table 56

Frequency Distribution of Responses to Statement 22, "The program seemed easy" by Employment Status

Employment Status	NR	VI	SI	NI	Total
Unemployed	1	1	3	27	32
Employed tradesman	3	1	9	30	43
Employed professional	1	1	8	48	58
Retired				2	2
Disabled				1	1
No response		4	1	8	13
Total	5	7	21	116	149

$X^2(15, N=149)=27.491$ Significant at $p \leq .05$ level.
NR= No Response
VI= Very Important
SI= Somewhat Important
NI= Not Important

Research Questions Answered

Question 1:

The first research question for which answers were sought was: Which internal and external factors, as chosen by the nontraditional student and one of their parents or

guardians, were important to the decision to study a nontraditional vocational program?

Student Responses

The study data revealed the following student responses:

Internal Factors

The importance of the internal factors was determined by the calculation of frequency distributions of the responses with the following statements in the student survey instrument:

Statement 17: "The vocational program looked like a good career opportunity." As shown in Table 17, four percent (N=12) of the 280 student respondents considered this reason as "Not important" to their nontraditional vocational choice. The majority of the students were interested in the career potential of the vocational program.

Statement 19: "The trade or business has always interested me." Only 15% (N=43) of the students stated that prior interest in the subject matter of the nontraditional program was "Not important" to their choice. Of the other respondents, 42% (N=117) believed it was "Somewhat important," whereas 40% (N=112) stated that prior interest was "Very important" as shown in Table 19.

Statement 23: "The exploratory program made me interested in the career." The majority of the students (74%; N=207) believed that the exploratory program was "Very

important" or "Somewhat important" to their nontraditional choice (see Table 23).

Statement 24: "Teachers in the exploratory program were great." In Table 24, the responses show that 72% (N=201) considered the teachers of the exploratory program to be "Very important" or "Somewhat important" to their final choice.

External Factors

The importance of the external factors was determined by the calculation of the frequency distributions of the responses with the following statements in the student survey instrument:

Statement 16: "My friends talked me into it." The data presented in Table 16 show that 84% (N=234) of the respondents said this was a "Not important" reason for their choice.

Statement 18: "Parent, guardian, friends, sister, or brother is in the same business or trade." The majority of the respondents (73%, N=205) declared this reason "Not important" to their choice (see Table 18).

Statement 20: "I wanted to be with my friends in the same program." As listed in Table 20, 52% (N=146) said this reason was "Not important" to their choice but 43% (N=119) said it was "Somewhat important."

Statement 21: "Someone else made the decision for me (guidance, parents, guardians, etc.)" The data in Table 21 show that 85% (N=239) of the respondents stated that

"Significant others" had not made the nontraditional choice for them.

Statement 22: "The program seemed easy." Table 22 lists the data showing that only five percent (N=13) of the students claimed this reason as "Very important."

Statement 25: "I didn't like any other programs." Of the respondents, 49% (N=137) considered this reason "Not important," whereas 40% (N=111) considered it "Somewhat important" (See Table 25).

Parent/Guardian Responses

The study data revealed the following parent/guardian responses:

Internal Factors

The importance of the internal factors was determined by the calculations of frequency distributions of the responses with the following statements from the parent/guardian survey instrument:

Statement 17: "The vocational program looked like a good career opportunity." Only three percent (N=4) of the 149 parent/guardian respondents considered this reason as "Not important" to the child's nontraditional choice. The majority of the parents/guardians (93%) believed the child considered the nontraditional choice a good career opportunity (see Table 42).

Statement 19: "Trade or business has always interested the child." Only 24% (N=36) considered this reason "Not important" (see Table 44).

Statement 23: "The exploratory program made the child interested in the career." Of the respondents, 69% (N=102) considered the child's exploratory program as "Very important" or "Somewhat important" to the nontraditional choice, whereas 26% (N=38) considered it "Not important" (See Table 48).

Statement 24: "Teachers of the exploratory program were great." In Table 49 are the responses to this reason showing that 69% (N=102) of the parents/guardians believed the teachers of the exploratory program were "Very important" or "Somewhat important" to their child's decision.

External Factors

The importance of the external factors was determined by the calculations of frequency distributions of the responses with the following statements from the parent/guardian survey instrument:

Statement 16: "Child's friends talked her/him into it." Table 41, has the results of the responses showing that 80% (N=119) of the parents/guardians believed this reason as "Not important" to the nontraditional choice.

Statement 18: "Parent, guardian, friend, sister, or brother is in the same business or trade." In Table 43, the responses show that 74% (N=110) of the parents/guardians believed this reason was "Not important."

Statement 20: "Your child wanted to be with her/his friends in the same vocational program." Data in Table 45

reveal that 82% (N=122) considered this reason as "Not important" to the choice.

Statement 25: "Your child did not like any other vocational program." Data in Table 50 show that 51% (N=76) considered this reason "Not important," whereas 29% (N=43) considered it "Somewhat important" to their child's decision to study a nontraditional vocational subject.

Question 2:

The second research question for which answers were sought, through the use of the chi-square test, was: Is there a significant relationship between gender of the student, vocational experience of a student's sibling(s), and participation in an exploratory program and the 10 reasons that may have led to a nontraditional vocational choice?

Gender of Student

There was a significant relationship ($p \leq .05$) between the independent variable "Sex of student" and Statement 17, "The vocational program looked like a good career opportunity." Only five percent (N=12) of the 249 female respondents considered the statement "Not important." None of the male students (N=30) considered the statement "Not important" (see Table 51).

Vocational Experience of Sibling(s)

"Vocational experience of Sibling(s)" was significantly related to Statement 20, "I wanted to be with my friends in the same program" ($p \leq .05$). Regardless of whether the

nontraditional student had a sibling with vocational school experience, only two percent (N=6) of the 280 students considered the statement to be "Very important" to their occupational choice (see Table 52).

Participation in an Exploratory Program

When the independent variable "Participation in exploratory program" was related to Statement 19, "Trade or business has always interested me," the resulting chi-square value was significant at the .05 level. Only 15% (N=43) of the 280 respondents considered the statement "Not important" to their participation in an exploratory program (see Table 53).

The relationship of the independent variable "Participation in an exploratory program" to Statement 23, "The exploratory program made me interested in the career," was significant at the .01 level. Of the 280 respondents, 53% (N=149) considered the statement "Very important," whereas 21% (N=58) considered it "Somewhat important." The remaining 23% (N=63) of the respondents considered the statement "Not important" (see Table 54).

The relationship of the independent variable "Participation in an exploratory program" to Statement 24, "Teachers in the exploratory program were great," resulted in a chi-square value significant at the .01 level. Table 55 shows that 39% (N=109) of the 280 respondents considered statement 24 as "Very important," whereas 33% (N=92)

considered it "Somewhat important." Only 25% (N=69) considered the statement "Not important" (Table 55, p. 110).

Question 3:

The third research question for which answers were sought using the chi-square test was: Is there a significant relationship between the educational level, employment status, and economic status of the parent/guardian and the 10 reasons, as chosen by the parent/guardian, that may have led the student to a nontraditional choice?

There was only one significant value resulting from the chi-square test. This was between the independent parent/guardian variable "Employment status" and Statement 20 "The program seemed easy." Regardless of employment status, only five percent (N=7) of the 149 parent/guardian respondents considered the ease of a nontraditional program as "Very important" to the choice for their child (see Table 56).

Results of the Findings

The statistical analyses of the responses to the survey instruments given to the students of 19 of the 26 Massachusetts regional vocational technical schools and to one of their parents/guardians produced the results reported in the following paragraphs. Both the factors that led these students to study a nontraditional vocational program and pertinent information about the students and parents and guardians are stated.

Factors Decided by Students

The 280 students from the 19 regional vocational technical schools in Massachusetts, who participated in this study, chose to study their nontraditional vocational program because of the following internal factors or determinants: (a) the program looked like a good career opportunity; (b) they had always had some interest in the subject matter of the nontraditional program; and (c) the exploratory program and the teachers of the exploratory program made them interested in the vocation.

External factors or determinants for the students did not play an important part in their decision. The large majority of them were not talked into studying the nontraditional program by their friends. Although wanting to be in a vocational program with their peers was somewhat important to these students, it wasn't the most important reason for their choice. The students made their vocational choice on their own, unaffected by "Significant others." Although the ease of studying the nontraditional program was somewhat important, it wasn't a very important consideration in their choice, nor was the fact of not liking any other vocational programs offered by their school.

Other Student Information

The following information, pertinent to these nontraditional students, resulted from the study:

Of the 280 students who participated in the study, 55% (N=154) had come from two-parent families, whereas 32%

(N=89) had experienced a long-term relationship only with one parent.

The majority of the nontraditional students were not studying a vocational program that was their originally intended major when they enrolled in a vocational technical high school.

The majority of the students had not changed their nontraditional program after deciding to major in it.

Of the 65 students who had changed their original nontraditional major, 62 responded that the reasons for the change were (a) boredom with the course, and (or) (b) dislike for the teachers.

Most of the nontraditional students (93%, N=260) believed their parent(s)/guardian(s) were happy with their vocational choice.

Of the nontraditional student respondents, 88% (N=247) had at least one student of the same gender, in their year of high school or another, studying the nontraditional program with them.

A very high percentage (94%, N=263) of the students said they had experienced no harassment from students of their own gender because they were majoring in a nontraditional vocational program. Of the student respondents, 80% (N=223) said they had experienced no harassment from the opposite gender.

Only three percent (N=7) of the students were not satisfied with their nontraditional vocational program

choice, whereas 83% (N=231) were satisfied "Most of the time" and 15% (N=41) were satisfied "Some of the time."

Factors Decided by Parents/Guardians

The 149 parents/guardians who responded to the questionnaire survey instrument asking for their opinion of which internal and external factors or determinants led their child to a nontraditional choice, agreed, almost to the same percentage, to the importance of the factors or determinants as decided by their child.

Other Parent/Guardian Information

The following information, pertinent to the parents/guardians of these nontraditional students were:

The 149 respondents to the parent/guardian survey instrument were primarily female and between the ages of 30 to 40 years old. The majority were mothers or fathers of the nontraditional students and had lived with their child since birth.

Most of the parents/guardians were not employed in a profession requiring a bachelor's degree, which they did not possess. The majority of the parent/guardian respondents claimed that their yearly family income did not exceed $30,000.

The respondents spoke, primarily, English at home and were of white non-hispanic ethnic backgrounds.

A large majority (92%) of the parents/guardians were satisfied with their child's nontraditional vocational choice and 74% of the parents/guardians had not suggested to

their child that they should study the nontraditional program. The parents/guardians preferred that the child should make her/his own decision.

The parents/guardians believed the chance for success for their child in studying the nontraditional program was predominantly "Very good" (45%; N=67) or "Good" (38%; N=56).

Based on these findings, recommendations will be made to the Massachusetts vocational education enterprise for formulating policies to encourage students to freely make occupational choices relative to their interests and not on traditional concepts of occupations appropriate to gender.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Chapter V is a summarization of the purpose of the study, the methodology used, and the major findings resulting from the study. Conclusions will be drawn from the findings and discussed. In addition, recommendations will be made to the Massachusetts vocational education enterprise for formulating policies to encourage students to freely make occupational choices relative to their interests and not on traditional concepts of occupations appropriate to gender. Other recommendations will be made for conducting future research related to this study.

Summary

There is much awareness within the United States, other developed countries, and some developing countries as to the part discrimination can play in limiting educational opportunities for their citizens. Discrimination takes many forms. People can be denied educational opportunities because of their race, age, social status, and even gender.

When education is limited to a person because of her/his gender, females, males, and the country imposing the discrimination suffer. This educational discrimination creates a major problem. Females and males who are assigned roles in a society, regardless of their natural inclinations, are exposed to an education to fit those roles. They become incomplete persons by not being allowed to be themselves. The problem becomes more complex because

people and their societies both lose benefits that would be gained by an active program to eliminate gender discrimination and stereotyping.

The enactment of Title IX of the Education Amendments of 1972 banned this discrimination on the basis of gender in all areas of education within the United States. This federal legislation was followed by subsequent legislation with the expressed purpose of ending sex bias, sex discrimination, and sex-role stereotyping.

Vocational education has consistently endeavored to promote gender equity in all its offerings and was aided in this endeavor by the passing of the Education Amendments of 1976, the Carl D. Perkins Vocational Education Act in 1984, and the Carl D. Perkins Vocational and Applied Technology Act of 1990.

Though legislation and funding, as approved by the United States Congress, have increased the percentage of students enrolling in vocational programs nontraditional for their gender, the vocational education enterprise is well aware that sex-segregated enrollment practices still continue. All vocational program areas traditionally dominated by one gender remain highly sex-typed.

Purpose of the Study

The purpose of the study was to discover which determinants led Massachusetts regional vocational technical high school students to choose nontraditional occupations and what effect external and internal factors had upon those

determinants. Since external factors such as economic status and attitudes of parents, relatives, peers, and school personnel can prevent or help students in a vocational choice, the study sought to discover whether these external factors were barriers or aids. In addition, internal factors, within the minds or students, were studied for their relevance to occupational choice.

Two populations were examined for the study. The first population was all the nontraditional students enrolled in the 26 Massachusetts regional vocational technical schools, 19 of which agreed to participate in the research project. The second population consisted of one of the student's parents or guardians.

Two survey questionnaire instruments were used for the study. Each questionnaire consisted of 25 items. The first 15 items were questions directed to the nontraditional student or the parent/guardian. The last 10 items were reasons that may have led the student to a nontraditional choice, the importance of which were determined by the student and the parent/guardian. The 25 responses of both questionnaires were subjected to a frequency distribution analysis. The last 10 items of both questionnaires were subjected to a chi-square test to determine if a relationship existed between three independent variables of the student, and of the parent/guardian, and each of the 10 reasons that may have led to a nontraditional choice. The three independent variables chosen for the student were:

(a) gender of student, (b) vocational experience of a student's sibling(s), and (c) participation in an exploratory program. The three independent variables chosen for the parent/guardian were: (a) educational level, (b) employment status, and (c) economic status.

Of the 565 questionnaires returned, 88 student and 48 parent/guardian questionnaires were rejected because the students were not majoring in a vocational area, leaving 280 student and 149 parent/guardian questionnaires analyzed for the study.

The data resulting from the student and parent/guardian questionnaires were subjected to the above two statistical methods through the use of SPSS (Statistical Package for Social Sciences). Answers were sought for the following research questions:

1. Which internal and external factors, as chosen by the nontraditional student and one of their parents or guardians, were important to the decision to study a nontraditional vocational program?

2. Is there a significant relationship between the three student independent variables and the importance of the 10 reasons that may have led the student to a nontraditional vocational choice?

3. Is there a significant relationship between the three parent/guardian independent variables and the choice made by the parent/guardian as to the importance of the 10

reasons that may have led their child to study a nontraditional program.

Major Findings

The 280 students of the 19 regional vocational technical schools in Massachusetts, who participated in the research, chose to study their nontraditional vocational program because of the following internal factors or determinants. These determinants were also deemed important, to the same degree, by their parents/guardians:

1. The program looked like a good career opportunity.

2. They had always had some interest in the subject matter of the nontraditional program.

3. The exploratory program and the teachers of the exploratory program made them aware of an interest in the vocation. Of the 280 students who participated in this study, 62% (N=174) were majoring in a program that was not their original interest when they enrolled in the vocational technical school.

External factors, for the students, did not play an important part in their decision.

1. Students were not talked into studying the nontraditional program by their friends.

2. Wanting to be in a vocational program with their peers was "Somewhat important" to these students but it wasn't a "Very important" reason for their choice.

3. The students made their vocational decision on their own, unaffected by "Significant others" such as

parents/guardians, guidance counselors, or knowing others who were practicing in the nontraditional field.

4. Having a sibling(s) with vocational school experience was "Not important" to their vocational program choice.

5. Although the ease of studying the nontraditional program was "Somewhat important," it wasn't a "Very important" consideration in their decision.

6. Not liking any other vocational programs offered by their school was "Not important" to their choice.

7. The large majority of the nontraditional students experienced no harassment from other students of the same or opposite gender because of their vocational major.

8. Both students and parents/guardians were pleased with the nontraditional choice.

9. The parents/guardians believed the chance for their child's success in the nontraditional field was either "Very good" or "Good."

Important Significant Relationships

There were significant positive relationships between the student independent variable "Participation in an exploratory program" and the following dependent variables: (a) "The exploratory program made me interested in the career" ($p = \leq .01$), and (b) "Teachers in the exploratory program were great" ($p = \leq .01$).

There was only one significant relationship between the parent/guardian independent variables and their choice of

the importance of the 10 reasons that may have led their child to study a nontraditional program (dependent variables). The variable was "Employment status," which showed a positive relationship with the reason "The program seemed easy" ($p = \leq .05$). Regardless of the parent's or guardian's employment status, 95% of the respondents considered the reason "Not important" to the nontraditional choice, and this was consistent with the student responses.

Conclusions

The vocational education literature mentions the difficulty vocational students have in making a career choice because of peer pressure, harassment, negative attitudes of parents/guardians, and insufficient vocational programs from which to choose. Students in the study did not have those difficulties. The administrators, guidance personnel, and teachers have done an outstanding job in removing these obstacles to a freely made occupational choice.

Although some students entered these vocational schools with a career decision already in mind, many changed their original intention because of exploring unknown careers and because of the interest created in these careers by the exploratory teachers. By giving the students an opportunity to explore unknown businesses and trades, and by choosing the exploratory teachers carefully, these schools widened the student's career potential.

External factors such as the educational and economic level of the parents/guardians, having siblings with vocational education experience, wanting to be with friends in the same vocational program, and how easy the nontraditional program was to study were not significant in the student's career choice. No doubt, this is a sign of the times. The advocacies of civil rights, feminism, and children rights have made available career possibilities unhampered by traditional concepts of gender-appropriate vocations, and parents or guardians want their children to make a career choice based on their interest and aptitudes. The schools that participated in the study are successfully promoting these attitudes.

The important conclusions resulting from the findings of the study are that the following internal factors were significant determinants in the student's nontraditional choice, namely that a student makes a nontraditional vocational choice based on the career potential inherent in the field, that the student's unknown interest and aptitude for the vocation is revealed by an exploratory program, and that teachers of an exploratory program must kindle a budding interest shown by the student for a nontraditional career.

These conclusions will form the basis for recommendations to be made to the Massachusetts vocational education community in order to create more opportunities for the vocational students to investigate nontraditional programs.

Recommendations

The Massachusetts vocational community is dedicated to providing gender-equity to vocational programs for all its students. One of the methods used to procure this gender-equity was to actively introduce vocational programs to students regardless of pre-conceived appropriateness because of one's gender. The Massachusetts vocational community must continue to actively introduce students to nontraditional programs in order for the students to discover unknown interests and aptitudes, and be allowed to freely make a vocational choice. The following recommendations will aid in this endeavor.

1. More "Open House" activities should be given by the regional vocational schools, throughout the school year, so that programs offered can be explained. These "Open House" activities should be given to younger students, possibly from Grade 5 to Grade 8 so that a career decision can be considered. Exposing only students in Grade 7 and Grade 8 to vocational education is not sufficient for their career education. Many students have made a tentative vocational decision by these years, based on what may be incomplete information.

2. Parents and guardians of these students must also be exposed to vocational career knowledge. Facts concerning the vocational programs and skills needed to work in the career area must be presented to both students and their parents/guardians for an intelligent decision to be made.

The career potential of the vocational field must be stressed. Also, it is important to notify both students and parents/guardians that many vocational skills, for which there is a need, do not require an academic degree, such as a bachelor's degree.

3. Massachusetts must continue to actively pursue nontraditional students for vocational programs by forming support groups for these students within the schools. Students, parents/guardians, and all school personnel must constantly be informed about the legislation created by the United State Congress to prohibit sex discrimination in any educational area. This legislation must be enforced by the regional vocational technical schools.

4. Continued emphasis must be placed on preventing harassment to nontraditional students by fellow students of the same or opposite gender. The best method for achieving this is to expose all of the students to more role models of nontraditional employers and employees.

5. Exploratory programs should be given to all incoming new students, regardless of grade level, and for all of the programs offered by the school. These exploratory programs do not have to be of an extended length of time. A short exploratory program can be just as effective as a long exploratory program in bringing to life a latent interest in a career.

6. Teachers of the exploratory program must be chosen with care. Special expertise is needed not only to teach a

vocational subject but also to create excitement about the subject matter to keep the nontraditional student interested in the career.

7. More effort must be expended to have fellow students of the same gender studying the nontraditional program, even if the student is in another grade. If this cannot be accomplished, then periodic visits to other vocational technical schools, or work sites, should be instituted where nontraditional students can see others of their gender studying or practicing the same vocational subject.

8. The ease of studying a nontraditional program was not a significant determinant that led to a career choice. Vocational teachers should tell the students about the difficulties of practicing the nontraditional vocation, but they also should tell them of the inherent rewards.

9. Data for this study show that males were under-represented in pursuing nontraditional occupations. It is recommended that future research seek answers to the following questions: (a) What are the primary reasons preventing males from studying nontraditional occupations?; (b) Would presentations by successful male role models in nontraditional occupations be more useful in attracting male students to nontraditional fields than legislation promulgated for that intent?; and (c) Would funds set aside by the United States Congress for each state to hire a full-time sex equity coordinator be better used to hire an

advertising agency to show successful male role models in everyday employment?

The pursuit of these recommendations should enable the Massachusetts vocational education enterprise to continue its success in attracting nontraditional students to its regional vocational technical schools. The enactment of these recommendations will also create more vocational programs of interest to students because of their career potential and not because of what is considered sex-appropriate for a student to study.

APPENDIX A
SURVEY QUESTIONNAIRE INSTRUMENTS

NONTRADITIONAL STUDENT SURVEY

1) Which year of high school are you in?

Freshman_____ Sophomore_____ Junior_____ Senior_____

2) How old are you? (Fill in.)

_____

3) Which sex are you?

Female_____ Male_____

4) With whom have you lived most of your life? (Choose only one.)

One parent_____ Both parents_____ Parent & guardian_____ Other(s)_____

5) If you have sisters & brothers, did any go to a vocational school?

None_____ In vocational school now_____ Graduated from a vocational school_____

6) Which vocational program are you majoring in? (Fill in.)

_____

7) Is this the same program you intended to major in before you came to this school?

Yes_____ No_____

8) Did you go through an exploratory program at this school?

No_____ Explored the trade I'm studying_____ Explored trade other than what I'm studying_____

9) Have you ever changed your major since coming to this school?

Yes_____ No_____

10) If yes, why? (Fill in.)

_____

11) Are your parents or guardians happy with your nontraditional choice?

Yes No

_____ _____

12) Are there other students of your sex, in your grade or any other grade, studying the same vocational program as you are?

Yes_____ No_____

13) Do other students of the same sex, in this school, give you problems because you are a nontraditional student?

Yes_____ No_____

14) Do other students of the opposite sex, in this school, give you problems because you are a nontraditional student?

Yes_____ No_____

15) Are you happy with the nontraditional shop that you are studying?

(Check one.)

Most of the time_____ Some of the time_____ No_____

There are 10 reasons listed below that may have made you choose a nontraditional vocational program to study. We would like to know whether each reason was "Very important," "Somewhat important," or "Not important" in making you decide to become a nontraditional student. Please check only one answer for each reason, and please check off all 10 reasons.

16) My friends talked me into it.

Very important_____ Somewhat important_____ Not important_____

17) The vocational program looked like a good career opportunity.

Very important_____ Somewhat important_____ Not important_____

18) Parent, guardian, friend, sister, or brother is in the business or trade.

Very important_____ Somewhat important_____ Not important_____

19) Trade or business has always interested me.

Very important_____ Somewhat important_____ Not important

20) I wanted to be with my friends in the same program.

Very important_____ Somewhat important_____ Not important_____

21) Someone else made the decision for me (guidance, parents, guardians, etc.)

Very important_____ Somewhat important_____ Not important_____

22) The program seemed easy.

Very important_____ Somewhat important_____ Not important_____

23) The exploratory program made me interested in the career.

Very important_____ Somewhat important_____ Not important_____

24) Teachers in the exploratory program were great.

Very important_____ Somewhat important_____ Not important_____

25) I didn't like any of the other programs.

Very important_____ Somewhat important_____ Not important_____

PARENT/GUARDIAN SURVEY

1) Which sex are you?

Female_____ Male_____

2) How old are you?

Less than 30 years_____ 30 to 40 years_____ 41 to 50 years_____ More than 50 years_____

3) What is your relationship with this student? (Check one.)

Mother_____ Father_____ Female guardian/stepparent_____ Male guardian/stepparent_____

Relative or other_____

4) How long has this student lived with you? (Fill in.)

_____

5) What is your employment status? (Check only one.)

Unemployed_____ Employed tradesman_____ Employed professional_____

6) If you are employed, what type of work do you do? (Fill in.)

_____

7) How much do you and other important workers, in your family, earn a year when the salaries are combined?

Below $20,000_____ $20,000 to $30,000_____ Above $30,000_____

8) Did you complete a grade school education?

Yes_____ No_____

9) If yes, what is your highest level of education beyond grade school?

Vocational/trade high school_____ Non-vocational/trade high school_____ College or other education beyond high school_____

10) What is the primary language spoken at home? (Fill in.)

_____

11) Which of the following are you?

Black Non-hispanic_____ Indian American or Alaskan Native_____ White Hispanic_____ Asian or Pacific Islander_____ White Non-Hispanic_____ Non-white Hispanic_____

12) Are you happy with your child's nontraditional vocational program choice?

Yes_____ No_____

13) Did you suggest to your child to study this nontraditional choice?

Yes_____ No_____

14) What do you think the chance for success is for your child in this nontraditional field?

Very good_____ Good_____ Fair_____ Poor_____

15) Which vocational program is your child majoring in? (Fill in.)

_____

There are 10 reasons listed below that may have made your child choose a nontraditional program to study. We would like to know whether each reason was "Very important," "Somewhat important," or "Not important" in making your child decide to become a nontraditional student. Please check off only one answer for each reason, and please check off all 10 reasons.

16) Child's friends talked her/him into it.

Very important_____ Somewhat important_____ Not important_____

17) The vocational program looked like a good career opportunity.

Very important_____ Somewhat important_____ Not important_____

18) Parent, guardian, friend, sister, or brother is in the same business of trade.

Very important_____ Somewhat important_____ Not important_____

19) Trade or business has always interested the child.

Very important_____ Somewhat important_____ Not important_____

20) Your child wanted to be with her/his friends in the same vocational program.

Very important_____ Somewhat important_____ Not important_____

21) Someone else made the decision for the child (guidance counselor, parent/guardian, etc.)

Very important_____ Somewhat important_____ Not important_____

22) The program seemed easy.

Very important_____ Somewhat important_____ Not important_____

23) The exploratory program made the child interested in the career. (Note: The purpose of an exploratory program is to introduce a student to a career in order to determine whether the student has any interest in it. Not all vocational schools have exploratory programs. If your child did not have an exploratory program, please check off "Not important" to this reason and also the next one.)

Very important_____ Somewhat important_____ Not important_____

24) Teachers in the exploratory program were great.

Very important_____ Somewhat important_____ Not important_____

25) Your child did not like any other vocational program.

Very important_____ Somewhat important_____ Not important_____

APPENDIX B
COMPLETED QUESTIONNAIRES RETURNED BY SCHOOL

Completed Questionnaires Returned by School

School	Questionnaires Returned	9th-Grade Exclusions		Usable Questionnaires	
		Student	Parent/Guardian	Student	Parent/Guardian
A	15	0	0	11	4
B	31	0	0	23	8
C	42	0	0	34	8
D	25	0	0	15	10
E	18	0	0	11	7
F	33	4	4	13	12
G	40	11	3	18	8
H	45	13	8	14	10
I	22	6	2	7	7
J	32	0	0	23	9
K	32	10	7	10	5
L	38	12	9	9	8
M	67	25	9	23	10
N	28	0	0	18	10
O	26	6	6	7	7
P	27	0	0	15	12
Q	11	0	0	6	5
R	16	0	0	11	5
S	17	1	0	12	4
Total	565	88	48	280	149

APPENDIX C
LETTER FROM SUPERINTENDENT-DIRECTOR

TRI•COUNTY
REGIONAL VOCATIONAL TECHNICAL SCHOOL DISTRICT
147 POND STREET•FRANKLIN•MASSACHUSETTS 02038

January 4, 1993

Dear Superintendent-Director:

I seek the assistance of you and your Guidance Department for aid in a doctoral research survey being conducted by one of our teachers here at Tri-County.

As you are aware, Title IX of the Educational Amendments of 1972 banned discrimination on the basis of sex in education. The Carl D. Perkins Vocational Education Act of 1984 along with the Carl D. Perkins Vocational and Applied Technology Education Act of 1990 have continued vocational education's efforts to eliminate sex inequity in our vocational schools. By actively promoting nontraditional occupations for both females and males desiring to study them, vocational education has sought to diminish the concept, in the minds of students and their parents, that certain courses of study are inappropriate because of one's gender.

Although some success has been achieved, sex-segregated enrollment patterns in vocational education still continue. Program areas traditionally dominated by one gender remain highly sex-typed.

The purpose of this dissertation research survey is to discover the determinants that led to nontraditional occupational choices of secondary students in Massachusetts Regional Vocational Technical schools. The knowledge of these determinants will enable other Massachusetts vocational schools to assist students in an occupational choice unhampered by negative sexual stereotypes.

A few of the major questions this survey intends to answer are the following: "What is the usefulness of the Exploratory Program now required by Chapter 74 regulations?" "What part do peers play in a student's occupational choice?" "How strong is the influence of the parents'/guardians' advice in an occupational choice?"

For this research to be successful, I ask for your involvement. Would you be kind enough to designate a liaison from your Guidance Department to administer a survey questionnaire to the nontraditional students in your school

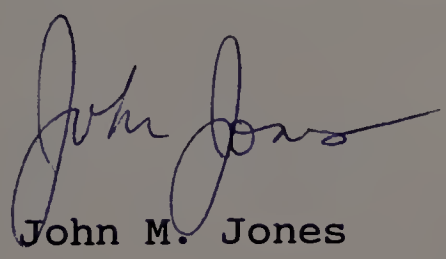
along with one of their parents/guardians? This will not take much time to accomplish. The student questionnaire should be given during the school day, for an element of control, while the parent/guardian questionnaire should be hand-delivered by the nontraditional student to her/his parent/guardian. This parent/guardian questionnaire should then be returned by the nontraditional student in a sealed envelope to the liaison. Respondents of both the student questionnaire and that of the parent/guardian, along with the name of your school, will remain anonymous.

I hope that you will participate in this survey. If you are able to assist the researcher in this endeavor, please fill out the enclosed form and mail it in the provided self-addressed and stamped envelope at least by January 29, 1993. Upon receipt of this form, sufficient questionnaires and instructions will be mailed directly to the liaison at your school.

It is requested that the survey be conducted, at the convenience of the liaison, either during this month of January or the next month of February, and that the completed questionnaires be returned to the researcher no later than the end of February, 1993. Envelopes, with postage prepaid, will be provided by the researcher for this purpose.

I thank you in advance for your assistance in research meant to aid in the elimination of sex-inequity in vocational-technical programs offered to our students.

Yours truly,



John M. Jones

Superintendent-Director

APPENDIX D
A MATRIX IDENTIFYING THE SIGNIFICANT AND NONSIGNIFICANT RELATIONSHIPS BETWEEN SELECTED INDEPENDENT VARIABLES AND VARIOUS PERSONAL CHARACTERISTICS OF THE STUDENT

A Matrix Identifying the Significant and Nonsignificant Relationships Between Selected Independent Variables and Various Personal Characteristics of the Student

Dependent Variables Questionnaire Statements 16 to 25	Independent Variables (A) Sex of Student (B) Vocational Experience of Sibling/s (C) Participation in Exploratory Program
(16) Friends talked me into it.	(A) $X^2(6,N=280)=1.535$ (-) (B) $X^2(12,N=280)=16.997$ (-) (C) $X^2(12,N=280)=6.635$ (-)
(17) The vocational program looked like a good career opportunity.	(A) $X^2(6,N=280)=13.787$ (**) (B) $X^2(12,N=280)=16.158$ (-) (C) $X^2(12,N=280)=8.085$ (-)
(18) Parent, guardian, friend, sister, or brother is in the same business or trade.	(A) $X^2(6,N=280)=4.487$ (-) (B) $X^2(12,N=280)=17.260$ (-) (C) $X^2(12,N=280)=13.006$ (-)
(19) Trade or business has always interested me.	(A) $X^2(6,N=280)=2.893$ (-) (B) $X^2(12,N=280)=8.552$ (-) (C) $X^2(12,N=280)=22.573$ (**)

Continued, next page

(20) I wanted to be with my friends in the same program.

(A) X^2(6,N=280)=1.950 (-)
(B) X^2(12,N=280=24.067 (**)
(C) X^2(12,N=280)=16.368 (-)

(21) Someone else made the decision for me.

(A) X^2(6,N=280)=4.696 (-)
(B) X^2(12,N=280)=19.670 (-)
(C) X^2(12,N=280)=20.238 (-)

(22) The program seemed easy.

(A) X^2(6,N=280)=1.232 (-)
(B) X^2(12,N=280)=4.531 (-)
(C) X^2(12,N=280)=15.218 (-)

(23) The exploratory program made me interested in the field.

(A) X^2(6,N=280)=4.715 (-)
(B) X^2(12,N=280)=13.239 (-)
(C) X^2(12,N=280)=128.473 (*)

(24) Teachers in the exploratory were great.

(A) X^2(6,N=280)=10.749 (-)
(B) X^2(12,N=280)=17.344 (-)
(C) X^2(12,N=280)=72.581 (*)

Continued, next page.

(25) I didn't like any of the other programs.

(A) $X^2(6, N=280)=1.242$ (-)

(B) $X^2(12, N=280=7.686$ (-)

(C) $X^2(12, N=280)=20.479$ (-)

(*) Indicates significant relationship occurred at $p \leq .01$ level.
(**) Indicates significant relationship occurred at $p \leq .05$ level.
(-) Indicates no significant relationship at $p \leq .05$ level.

APPENDIX E
A MATRIX IDENTIFYING THE SIGNIFICANT AND NONSIGNIFICANT RELATIONSHIPS BETWEEN SELECTED INDEPENDENT VARIABLES AND VARIOUS PERSONAL CHARACTERISTICS OF THE PARENT/GUARDIAN

A Matrix Identifying the Significant and Nonsignificant Relationships Between Selected Independent Variables and Various Personal Characteristics of the Parent/Guardian

Dependent Variables Questionnaire Statements 16 to 25	Independent Variables (A) Level of Education (B) Employment Status (C) Economic Status
(16) Child's friends talked her/him into it.	(A) $X^2(12,N=149)=9.327$ (-) (B) $X^2(15,N=149)=8.620$ (-) (C) $X^2(9,N=149)=15.177$ (-)
(17) The vocational program looked like a good career opportunity.	(A) $X^2(12,N=149)=14.946$ (-) (B) $X^2(15,N=149)=12.035$ (-) (C) $X^2(9,N=149)=9.412$ (-)
(18) Parent, guardian, friend, sister or brother is in the same business or trade.	(A) $X^2(12,N=149)=13.843$ (-) (B) $X^2(15,N=149)=19.153$ (-) (C) $X^2(9,N=149)=10.384$ (-)
(19) Trade or business has always interested the child.	(A) $X^2(12,N=149)=15.819$ (-) (B) $X_2(15,N=149)=14.180$ (-) (C) $X^2(9,N=149)=13.447$ (-)

Continued, next page.

(20) Your child wanted to be with her/his friends in the same program.

(A) $X^2(12, N=149)=2.604$ (-)
(B) $X^2(15, N=149)=13.801$ (-)
(C) $X^2(9, N=149)=4.638$ (-)

(21) Someone else made the decision for the child (Guidance counselor, Parent, Guardian).

(A) $X^2(12, N=149)=9.175$ (-)
(B) $X^2(15, N=149)=11.863$ (-)
(C) $X^2(9, N=149)=4.635$ (-)

(22) The program seemed easy.

(A) $X^2(12, N=149)=11.050$ (-)
(B) $X^2(15, N=149)=27.491$ (**)
(C) $X^2(9, N=149)=16.324$ (-)

(23) The exploratory program made the child interested in the career.

(A) $X^2(12, N=149)=11.548$ (-)
(B) $X^2(15, N=149)=14.755$ (-)
(C) $X^2(9, N=149)=6.350$ (-)

(24) Teachers in the exploratory program were great.

(A) $X^2(12, N=149)=20.276$ (-)
(B) $X^2(15, N=149)=11.051$ (-)
(C) $X^2(9, N=149)=7.620$ (-)

Continued, next page.

(25) Child didn't like any other programs in school.

(A) $X^2(12, N=149)=13.644$ (-)
(B) $X^2(15, N=149)=6.438$ (-)
(C) $X^2(9, N=149)=9.263$ (-)

(*) Indicates significant relationship occurred at $p \leq .01$ level.
(**) Indicates significant relationship occurred at $p \leq .05$ level.
(-) Indicates no significant relationship at $p \leq .05$ level.

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