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OCCUPATIONAL SEX-STEREOTYPES OF PUBLIC SCHOOL
STUDENTS - GRADE LEVEL 3, 6, 9, AND 12.

IOWA STATE UNIVERSITY, PH.D., 1978

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Occupational sex-stereotypes of public school
students - grade level 3, 6, 9, and 12

by

Rodger Eugene Pitstick

A Dissertation Submitted to the
Graduate Faculty in Partial Fulfillment of
The Requirements for the Degree of
DOCTOR OF PHILOSOPHY

Department: Industrial Education

Major: Industrial Vocational - Technical Education

Approved:

Signature was redacted for privacy.

In Charge of Major Work

Signature was redacted for privacy.

For the Major Department

Signature was redacted for privacy.

For the Graduate College

Iowa State University
Ames, Iowa

1978

TABLE OF CONTENTS

	Page
PROLOGUE	v
CHAPTER I. INTRODUCTION	1
Problem of the Study	2
Purpose of the Study	2
Need for the Study	2
Hypotheses of the Study	7
Research hypothesis I	7
Statistical hypothesis I	7
Research hypothesis II	7
Statistical hypothesis II	8
Research hypothesis III	8
Statistical hypothesis III	8
Assumptions of the Study	8
Limitations of the Study	9
Procedure of the Study	9
Definition of Terms	10
Summary	11
CHAPTER II. REVIEW OF LITERATURE	12
Objectives of Career Education	12
Self-development	13
Occupational choice	16
Sex-Role and Sex-Stereotyping	18
Career Education Related to Sex-Stereotyping	22
Education effects on stereotyping	23
Career education objectives relative to sex-stereotyping	25

	Page
Previous Research on Occupational Sex-Stereotyping	28
Summary	34
CHAPTER III. METHODOLOGY AND DESIGN	36
Review of Previous Instruments	36
Pilot of Instrument	38
Population and Sample	38
Collection of Data	39
Analysis of Data	40
Summary	43
CHAPTER IV. ANALYSIS AND FINDINGS	44
Analysis of Complete Statistical Model	44
Research hypothesis I	46
Research hypothesis II	47
Research hypothesis III	47
Analysis of Reduced Models	47
School effect removed	48
Treatment effect removed	50
Research hypothesis IV (alternate)	50
Summary	53
CHAPTER V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	54
Summary	54
Delimitations of the study	56
Conclusions	56
Research hypothesis I	57
Conclusion I	57

	Page
Research hypothesis II	58
Conclusion II	58
Research hypothesis III	59
Conclusion III	60
Research hypothesis IV (alternate)	61
Conclusion IV	61
Implications	63
Recommendations for Further Research	63
REFERENCE NOTES	65
BIBLIOGRAPHY	66
ACKNOWLEDGMENTS	72
APPENDIX A. LETTER FROM CANDACE S. GARRETT	73
APPENDIX B. OCCUPATIONAL SEX-STEREOTYPING INVENTORY	75
APPENDIX C. SEX-STEREOTYPING OF OCCUPATIONS (RANKING)	79

PROLOGUE

TEVYE "... You may ask how did this tradition start.
I'll tell you - - - I don't know. But it's a
tradition... Because of our traditions, everyone
knows who he is and what God expects him to do."

Prologue:

Fiddler on the Roof

CHAPTER I. INTRODUCTION

After Commissioner of Education Sidney Marland advocated the concept of Career Education in 1970, the first half of this decade was marked with a flurry of activity to initiate and implement career education programs. This was a natural outgrowth of the career development movement. There was concern expressed by many educators that these programs should have a lasting effect rather than becoming just another fad to be replaced by the next innovation that comes along. Are young people making more reasoned and deliberate choices of occupation as a result of these programs instead of their vocations being the result of drifting into a particular job or being determined by accident of locality or birth? Super (1963) stated:

In expressing a vocational preference, a person puts into occupational terminology his ideas of the kind of person he is; that entering an occupation, he seeks to implement a concept of himself; that in getting established in an occupation, he achieves self-actualization. The occupation thus makes possible the playing of a role appropriate to the self-concept. (p. 1)

The development of the DNA (deoxyribonucleic acid) model for explanation of chromosomal structure has revived the environment vs. heredity debate. There is much speculation as to the degree that the 46 chromosomes blueprint the many characteristics that go into the makeup of each person. The increased importance of the part environment plays in development is stressed by those who advocate effective career education programs. Is a person limited to a particular role in life because of the presence or absence of a Y factor?

Present child development theory assigns major importance to the early formative years' influence on a person's personality and the outcomes of his/her later life. These early years encompass the preschool experiences influenced largely by the parents and television along with the initial grades in school. The concepts of self and others that are formulated during primary grades may strategically influence the student's later decisions of education, occupational choice, and life style. Although realistic choices of an occupation based upon abilities and experience cannot be made until late high school and early adulthood, tentative choices are made earlier to facilitate course selection (Tiedeman, 1961). The particular role in this selection process to be played by the industrial education departments is important to determine. Some departments have taken an active lead in promoting opportunities for girls in all of the industrial education courses, while others are only very reluctantly doing so, since the advent of Title IX requiring equal opportunity. A similar concern is present in all departments of the schools, especially the other vocational areas.

The Seventies have seen the proliferation of various accountability strategies; such as Management by Objectives (MBO), Plan Program Budgeting System (PPBS), and the National Assessment of Educational Progress (NAEP), to help determine the effectiveness of different education programs in achieving the designed outcomes. To determine equality of opportunity, efforts should be made to measure the effectiveness of career education programs, specifically determining the extent of reduction of sex-stereotyping on occupational choice.

The expected outcome of this study was to determine the extent of occupational sex-stereotype ratings of students and any differences that existed.

Problem of the Study

The problem of the study was twofold:

1. To determine the extent of occupational sex-stereotyping in in Iowa school students;
2. To measure the effectiveness of career education programs on the reduction of occupational sex-stereotyping.

Purpose of the Study

The purpose of the study was threefold:

1. Assist the Iowa Department of Public Instruction, local education agencies, and teacher educators in determining the extent to which students exhibit occupational sex-stereotyping at the time of this study;
2. Assist local career education coordinators to evaluate the effectiveness of their efforts by determining the measurable differences their career education programs have on the extent of occupational sex-stereotyping of students;
3. Assist teachers in detecting occupational sex-stereotyping by their students and to initiate strategies to prevent or reduce occupational sex-stereotyping.

Need for the Study

In considering an occupational choice, a student must be able to discern between the effects of sex and gender in this process. "The

difference between sex and gender is the difference between what is biologically inherited and what is socially assigned" (Grambs, 1975, p. 34). Students need the benefit of factual, nonstereotyped job requirements to facilitate the making of optimal career decisions.

Employers today must follow the guidelines of Affirmative Action in their employment and promotion practices. There exists a need to measure the extent that teachers and counselors manifest Affirmative Action regarding the prevention and reduction of occupational sex-stereotyping of their students.

In a 1973 letter to the Minnesota Department of Education, The Emma Willard Task Force on Education stated that:

We are concerned that girls and boys must NOT be stereotyped at an early age, thinking that girls cook, sew and take care of children when they are adults; and boys don't do any of that stuff, but are the only ones responsible for bringing home the paycheck.
(p. 5)

Some very specific education proposals were made, including:

- Discussion of career goals in light of sex-role expectations.
- Investigation of the employment structure for obstacles that keep women from functioning fully within it.
- Elimination of vocational interest and aptitude tests that use separate criteria for boys and girls.
- Open access to home economics and shop electives for both sexes.
- Use of textbooks and other materials that picture both sexes in a variety of roles and life-styles.
- In-service training courses for all educational personnel that examine sexist attitudes and practices. (p. 6)

The channeling of men and women begins at a very early age. From the moment of birth, with the announcement of its sex and the selection of an appropriate name, there will be important differences in the manner in which the child is handled and nurtured. Audrey Vanderen (1971) posits that:

Too long the "masculine" and "feminine" mystique has determined how one must behave and what one must do if one wished to "fit in" to society as has been determined. This is where the schools can help to change things. They can stop the boys over here, girls over there syndrome. Skill orientation...things which can be useful to persons of either sex, belong in the elementary school. (p. 397)

While all institutions in society contribute to the perpetuations of sexism, this research was primarily concerned with the part schools play in overcoming the myths, biases and cultural expectations of women and men. It does little good to abolish medical school quotas for women if children laugh at the idea of a girl doctor, or a male nurse.

At a 1973 national conference on Career Education: Implications for Minorities, Elizabeth Duncan Koontz stated,

There is a women's movement in this country and it is real, but the elimination of sex discrimination applies to men, too.

The thing that's unforgiveable is if he (a boy) wants to play with a doll or tea set. He doesn't know that he's a boy yet, but he just can't do that. Never mind the world's greatest chefs are men; never mind that some of the tailors of the world are men.

It's all right for him to get up there and make \$50,000 a year as a chef if he manages, through this culture, to withstand all that's being said about him as he learns to cook. But God help him if he wants to take home economics. (p. 54)

Vocational counselors, responsible for advising students in appropriate course selection have deliberated extensively on the best choices to recommend. In a 1975 monograph considering career development for girls, Kathryn F. Clarenbach wrote:

The separation of so-called men's work and women's work as reflected in school curricula is crippling and damaging to both girls and boys in a number of other ways as well. By emphasizing preparation for marriage and parenthood for females only, we devalue these enterprises and perpetuate the exclusion of males from these facets of life. By excluding females (with rare exceptions) from shop, woodworking, mechanics, etc., we perpetuate notions that such skills and understanding and the occupations these may lead to, are for men only. In reality, both men and women have equivalent and inescapable needs to know and be comfortable in functioning with the range of information and skills incorporated in home economics, nutrition, health, family living, consumer information, auto mechanics, electricity, shop, etc. Both men and women drive and maintain cars, sign contracts, buy and furnish homes, select and repair consumer durable goods. And unless every individual without regard to the irrelevancy of gender is prepared to handle all aspects of life, he or she is truly crippled. (p. 47)

From the discussion presented thus far, it has been documented that a more humanistic, nonsexist approach should be utilized to prevent or reduce occupational sex-stereotyping.

Ruth F. Scheresky (1975) concluded from her research of children's perception of occupational roles that the degree of sex-stereotyping was high among all children, regardless of sex or age. Among her suggestions for further research were:

1. Replication study using different age groups are seen as useful to determine to what degree the pre-school child stereotypes occupational roles and/or

the junior and high school individuals accept occupational roles for men and for women.

2. Research should be undertaken using schools in which career education has been implemented into the curriculum, as compared to schools that have not had career education. Such research could provide information about the amount of stereotyping that might be eliminated through the career education program of instruction. (p. 97)

Therefore, it was most desirable that research be conducted to determine if occupational sex-stereotyping is reduced by career education programs.

Hypotheses of the Study

Research hypothesis I

It was hypothesized that there are no significant differences in the extent of occupational sex-stereotyping among students in grade levels 3, 6, 9, and 12.

Statistical hypothesis I

$H_0: \mu_3 = \mu_6 = \mu_9 = \mu_{12}$	μ_3 = mean of third grade students
$H_a:$ At least one pair of	μ_6 = mean of sixth grade students
means is not equal	μ_9 = mean of ninth grade students
	μ_{12} = mean of twelfth grade students
	$\alpha = .05$

Research hypothesis II

It was hypothesized that there is no significant difference in the extent of occupational sex-stereotyping between male and female students.

Statistical hypothesis II

$$H_0: \mu_f = \mu_m$$

μ_f = mean of female students

$$H_a: \mu_f \neq \mu_m$$

μ_m = mean of male students

$$\alpha = .05$$

Research hypothesis III

It was hypothesized that there is no significant difference in the extent of occupational sex-stereotyping between students who have had a career education program and those who have not.

Statistical hypothesis III

$$H_0: \mu_p = \mu_c$$

μ_p = mean for students in career education program

$$H_a: \mu_p \neq \mu_c$$

μ_c = mean for students in control group

$$\alpha = .05$$

All first-order and second-order interactions were tested.

Assumptions of the Study

For the purpose of this study, the following assumptions were made:

1. The occupational sex-stereotype questionnaire used was adequate to measure true differences.
2. The students answered the questionnaire to the best of their ability.

Limitations of the Study

The study was conducted under the following limitations:

1. A single questionnaire was used to measure the extent of occupational sex-stereotyping.

2. Students classified as having career education programs were limited to those from schools recognized as such by the Iowa Department of Public Instruction.

3. Students selected for the study were from schools within Merged Area V of Iowa.

4. Only the variables of career education program, sex, and grade level were considered.

Procedure of the Study

The procedure of the study consisted of the following:

1. A review of the literature was made on the subjects of occupational sex-stereotyping and career education.

2. Instruments previously used in related studies were reviewed for possible adaptation. A modified form was used as a model instrument.

3. The selected instrument was reviewed and verified by authorities in occupational sex-stereotyping and teachers at the respective grade levels.

4. The instrument was piloted within a single school system, which was not included in the study, to determine difficulty in administration and clarity of directions.

5. Appropriate minor modifications were made to the instrument and a final testing version was developed and reproduced.

6. Students included in the study were from schools within Merged Area V of Iowa that provided career education programs for three or more

years. This was to insure that students had the opportunity and activities to meet the objectives of each stage of career development.

7. Students selected for the control group were from schools within Merged Area V of Iowa which had no formal career education program and were willing to participate in the study.

8. The instrument was administered by the regular teacher to the students at grade levels 3, 6, 9, and 12.

9. The responses to the instrument were collected and scored optically with data transferred to magnetic tape for statistical analysis.

10. A 2 x 4 x 2 factorial analysis of variance (ANOVA) statistical design was used to analyze the data: testing on grade levels 3, 6, 9, and 12, sex, and career education program or no program (control).

11. A summary, with conclusion and recommendations completed the study.

Definition of Terms

Career Education Program - A program that meets the guidelines of the Iowa Department of Public Instruction including a designated career education coordinator and written curriculum that encompasses career education K-12 in scope.

Sex-Stereotyping - (Sexism) The predetermination of people's choices in life on the basis of sex, without regard to individual differences (Emma Willard Task Force, 1973)

Merged Area V - Consists of Buena Vista, Pocahontas, Humboldt, Wright, Sac, Calhoun, Webster, Hamilton, and Greene Counties merged to establish and operate a community college. (Coterminous with Area Education Agency 5 in Iowa)

Summary

In this chapter, a brief introduction to the study was made; the problem, purpose, and need of the study were discussed; and the specific problem to be addressed by the study was defined. Are there differences among the occupational sex-stereotypes of students of different grade levels, between males and females, and between students who have had a career education program and those who have not? The hypotheses of interest were stated with the assumptions and limitations of the study being noted. The procedure of the study was outlined and specific terms defined.

In the following chapter, a review of the cogent literature is presented. The methodology and design of the study are included in Chapter III. In Chapter IV the analysis and findings of the research data are presented. The final chapter incorporates a summary, conclusions and recommendations for further research.

CHAPTER II. REVIEW OF LITERATURE

This chapter has focused on the review of literature related to two concerns: (a) sex-stereotyping and (b) career education and their mutual interrelationships. With the current quantity and variety of material available on both topics, this review is not intended to be exhaustive or redundant. Citations have been limited to four main areas: (1) objectives of career education, (2) sex-role and sex-stereotyping, (3) career education related to sex-stereotyping, and (4) previous related research on the topic. The review of literature within sub-topics is delimited primarily to the interactions with the above mentioned areas. There have been numerous investigations carried out in the area of career education and sex-stereotyping. There are few that have focused on the relationships between these two concepts. A limited number has considered the occupational stereotypes of students. Only two studies were found which investigated modification strategies for reducing sex-stereotyping of vocations. None were found which examined specifically the effects of career education programs on reducing or preventing occupational sex-stereotypes.

Objectives of Career Education

The career education movement of the 1970's has been characterized by rapid and widespread growth. Its goals are extensions of the concepts of career development. There has been much federal assistance in the development of individual programs, but each state has largely established its own program definitions and parameters. The concept as

established in Iowa is broad and encompasses the entire curriculum. As stated in Implementing Career Education in the School Curriculum: (1974)

It proposes change from within the educational system developed and directed by classroom teachers and school administrators, based on the needs of their students and communities. The concept supports existing programs of study by providing a realistic environment for the learner to develop those mental, physical, and social skills needed to lead a personally satisfying and productive life after leaving school by relating the subject matter studied to the world surrounding the learner. (p. 7)

A definition was proposed, which is similarly broad:

Career education is a sequence of planned educational activities designed to develop positive student attitudes, values, knowledges, and skills toward self and the world of work that will contribute to personal fulfillment in present and future life opportunities as well as economic independence. Career education, when incorporated into the existing curriculum, has as its goal the creation of positive career objectives through the involvement of community resources and educational agencies. (p. 10)

This broad definition has been maintained in the conceptualization of a model for career education in Iowa. It incorporates three main elements: self-concept, the world of work, and self and the world of work. This self-concept, or self-development will be viewed as it takes place within the school setting.

Self-development

There is more than one way to consider self-development. Piaget (1973) states, while discussing intellectual and cognitive development:

Actually we can distinguish two aspects in the child's intellectual development. On the one hand, we have what can be called the psycho-social aspect, that is, everything the child receives from without and learns in general by family, school, educative transmission. On the other there is the development which can be called spontaneous. (p. 2)

This study confines itself to the development of self due to the milieu.

In reviewing the process of self-concept formation, Bailey & Stadt (1973) emphasizes the self-awareness and differentiation of self from others to help the child develop a repertoire of self-precepts. Further, that the impressions the student receives from his activities and interpersonal relationships are combined to form mental pictures.

Every person carries within his head a mental model of the world. Just how accurately the world is portrayed will have a critical effect on that person's life. Toffler (1970) posits, "Any person's mental model will contain some images that approximate reality closely, along with others that are distorted or inaccurate. But for the person to function, even to survive, the model must bear some overall resemblance to reality." (p. 156) This model is formed mostly vicariously from family, school, and media. A major premise for Future Shock, was not only the accelerating change in circumstances, but the change in knowledge itself.

A person's self-concept, framed within the everchanging reality of the world, must include adaptive skills to remain in harmony with the changes in knowledge. A student must be keyed to the process of education, rather than limited to the product. Cole (1972), delineates basic

assumptions for process education. Among them:

Knowledge is an organized but tentative and arbitrary collection of changing and expanding information which each individual adapts and uses to make meaning from his unique experience. (p. 35)

The structure and substance of knowledge can and should be manipulated and the learner cannot and should not be manipulated. Instead of manipulating students, schools should be concerned with the development of the self-concept and self-actualization (Bailey & Stadt, 1973).

Self-actualization was first conceptualized by Abraham Maslow, with his pyramid of needs. As reported in Rettig (1974), "the highest need of man is to actualize himself, to achieve his full potential, to become all that he might be." Goble (1970), describing Maslow's Third Force education indicates it will put more emphasis on development of a person's potential, particularly to grow toward self-actualization.

The self-actualization need, while sometimes partially met through a person's occupation, goes far beyond making a living. As Tiedeman (1963) suggests:

Making a living only requires the attainment of income sufficient to satisfy one's own desires and the desires of those one elects to support... Making a living must become a part of a larger goal if work is not to become overengrossing. "Making a life" is a relevant larger goal. (p. 3-4)

Making a living is, however, basic to making a life. The various state career educational plans all make provision for acquiring the knowledge and the decision-making skills for selection of an occupation.

Occupational choice

Within each of the state plans promulgated to implement the career education concept, is contained a primary component of the development of the necessary skills for career decision-making. Arizona's plan (1973) includes a matrix of desired outcomes. Among them is the student's understanding of the variety of occupations found in the world of work and the range of social and economic benefits associated with them, and his understanding of the relationship between personal economics, life-style, and occupational roles. Decision-making skills include identifying alternatives and selecting those most consistent with the student's goals.

In Wisconsin's career education model (1972) it was expressed that individuals differ in their interests and abilities, but they can learn to perform adequately in a variety of occupations. This same theme prevails in California's approach (Sampieri, Note 1) with the declared objective to have students explore a full range of career opportunities. In the initial statement, it was asserted that it was essential that their educational programs help students develop the basic skills required for employment and the ability to select an appropriate field of endeavor. It was emphasized that each student should develop an understanding of careers in both the present and future worlds of work.

Minnesota's definition (1972) stated that career education is an integral part of education providing planned and meaningfully taught experiences for all persons which contribute to self-development relating to various career patterns. A goal for high school students

was to relate career choice to a life style based on interests, abilities, needs, and values.

In Essays on Career Education (1973), Spradley stated:

The notion of informed choices is crucial to the primary goal of Career Education. The greatest barrier to developing one's own career and having command over one's life is lack of information. To choose a career is to select from available alternatives. But if the vast majority of career alternatives are unknown, they are not viable options for the individual. (p. 11)

This concept of informed choices spans the time frame from Super (1953) to Bailey & Stadt (1973) to the present. Bailey asked "When can individuals freely and intelligently select occupations for which their interests and capabilities are fitted?" While discussing various definitions of career education, he indicated it should provide experiences designed to help individuals become oriented to, select, prepare for, enter, become established, and advance in a satisfying and productive career. (p. 346)

According to Super (1963), one of the five factors in career maturity is the amount of reliable information a person has about occupations, and his ability to use this information to logically plan and make rational career decisions. (p. 85)

Among the Iowa career education model objectives (1974), it was stated that a student:

Comprehends that a wide variety of occupations exist and observes qualities desirable for various occupations due to personal competencies.

Recognizes personal characteristics which relate to selected clusters of occupations and sees the inter-relationship between the law of supply and demand of workers and the continual change in the work force.

Recognizes the educational setting as a place to gain direction and needed skills for the attainment of occupational goals.

The consensus has indicated that students should make career decisions based on the widest possible set of data concerning themselves and their vocational opportunities.

Sex-Role and Sex-Stereotyping

The psychoanalytic explanation of the development of gender-roles, based on the work of Sigmund Freud, was discussed by Duberman (1975):

A notable aspect of Freud's thinking was the inferior status he assigned to women. He based his assessment of women on five major assumptions. First, he said that anatomy is destiny. Female genitalia determine a woman's basic nature and equip her perfectly to be the caretaker of the home and the children. (p. 38)

A position in society is referred to as a social status (Duberman, 1975). A status has rights, obligations and a measure of prestige attached to it, and these factors constitute a social role. Socialization is the training people are given in order for them to learn what their statuses are and how to perform the roles attached to those statuses. Sex is the ascribed status referring to the biological differences between people. The social role attached to sex is gender role, meaning the learned patterns of behavior that differentiate men from women in a given society.

Masculinity and femininity are gender roles, acquired during one's lifetime through learning, role-taking, imitation, observation, and direct instruction. They are dependent on skill, effort and ability. (p. 26)

Anthropologist Margaret Mead's study of primitive societies and their possible gender-role developments is reported by Duberman (1975). Mead's research indicated that gender-role behavior can be and is manipulated to satisfy the requirements of the society. Grambs (1975) reported on the work of men and women in other cultures and made the observation that it is not the nature of the task, but rather the cultural assignment of the task to one sex or the other that determines who will undertake it.

In an investigation of the relationship between sex stereotypes and traditional sex-determined role standards, Ellis and Bentler (1973) reported the persistence of stereotypes, even though they are no longer functionally significant. It was suggested that the opposite sex, rather than the same sex, may serve as a primary frame of reference for a person's self-concept. It may be that masculinity means "unlike females" - not "like males." Males may feel uneasy about the women's movement because their sex-role identity depends on females being different.

The characteristics ascribed to men are positively valued more often than characteristics ascribed to women (Broverman et al., 1972). Moreover, these sex-role differences are considered desirable by college students and healthy by mental health professionals.

There has been a veritable tidal wave of literature associated with the attempts of women to secure equality during the past generation. The decade of the 1970's witnessed the passage of the Equal Rights Amendment by Congress and the struggle for its ratification by states. There is evident wide support for the movement. Sister Quinonez (1976) included this statement of Pope John XXIII:

Women are gaining an increasing awareness of their natural dignity. Far from being content with a passive role or allowing themselves to be regarded as a kind of instrument, they are demanding both in domestic and in public life the rights and duties which belong to them as human persons. (p. 5)

It was not coincidental that sex discrimination in education became a national political issue during the Seventies. The entire educational system had been guilty of overt and covert sex discrimination, as well as sex-stereotyping. These policies and practices went unchallenged until the development of the women's rights movement (Fishe & Pottker, 1977). Discrimination in the hiring and promotion of women in federal jobs was prohibited by Executive Order 10980 of 1961. This was soon followed by the Equal Pay Act of 1963, which required women to receive equal pay for equal work.

However, the landmark legislative action came in 1964 with the passage of Title VII of the Civil Rights Act. This prohibited discrimination in employment, including sex as one of its characteristics. In 1967, President Lyndon Johnson signed Executive Order 11246, requiring affirmative action by employers under federal contracts to eliminate discrimination.

The feminist focus on education captured the interest of concerned persons everywhere. Research was undertaken and has since confirmed a wide variety of sex discrimination present in schools. Textbooks, group tests, counseling, and vocational education were the main areas of concern. Most female students are not prepared for gainful employment at all, but rather are prepared to be housewives. This situation is especially ironic in that girls who enter vocational programs are rarely from a social class background that later permits them the luxury of being housewives (Fishel & Pottker, 1977).

Although Congress passed Title IX in 1972, banning sex discrimination in education, the final regulation implementing and interpreting Title IX did not go into effect until August 1975. Besides tapping some very deep congressional feelings on sex roles, it has brought out strong emotions on the proper role of the federal government in setting local educational policy.

In describing the normal neuroses in the individual and society, Putney (1964) posited (including both women and men):

A man is not free to do that which he cannot imagine doing, and if in the past Americans had a limited awareness of pressures to conform, it was only because they could not grasp the possibility of behaving in ways fundamentally different. (p. 2)

So long as the individual takes for granted the assumptions that prevail in his society, he is limited to those thoughts and actions which are conceivable in terms of these assumptions. To perceive other alternatives he must first break free of the preconceptions which limit his imagination. (p. 7)

While these constraints apply to both sexes, there has been much more emphasis given to expansion of the female view. Gilligan (1977) contended the essence of the decision is the exercise of choice and the willingness to accept the responsibility for that choice. To the extent that women perceive themselves as having no choice, they correspondingly excuse themselves from the responsibility that decision entails.

Most of the questioning of the stereotyped gender roles comes from the perspective of women. The implication is that liberation is a problem of women only. Farrell (1975) said regarding this situation:

The gender-role problem is recognized as one that involves both sexes, in which women and men can learn from each other. If fathers and mothers do not question their own gender roles, their children will continue to learn the same stereotypes. A men's liberation movement must occur simultaneously with a women's movement to eliminate existing barriers to gender-role changes. (p. 216)

Career Education Related to Sex-Stereotyping

Within the broad framework of society, the structure of formal education exists. The folk-view of the school is essentially sexist. With few exceptions, parents expect that schools be quite clear about the fact that boys are boys and girls are girls. This view of the schools is patterned after the way society has been organized. Yet the American school system prides itself on its egalitarianism. But the students are in fact treated differently on the basis of sex. The schools prepare boys and girls for traditional sex roles (Grambs, 1975).

Boys and girls, men and women have many talents, abilities, and interests. Talent - an innate capacity or predilection - is distributed widely irrespective of sex. Yet cultural norms regarding sex appropriate work lock each sex into a highly restricted track. (p. 223)

Education effects on stereotyping

Because the schools reflect traditional community attitudes, they alone cannot prepare women for a different role (Spillane, 1975). Our schools produce what they feel society needs. The legislation of the 1970's concerning equal rights indicates a change in the felt needs. The schools are a major influence on the entire environment of students. The environment can develop, suppress, or divert creative capacities. A talent will probably remain latent, if it appears in an environment where it is not encouraged. With the insistence on specialization, a person with various talents is forced to decide early which talent to cultivate and which talent to suppress. The wrong choice may lead to failure, where the cultivation of an alternative talent might have brought greater success (Scheinfeld, 1950). We can never ignore the fact that environments for women always and everywhere have been different from those for men, and more likely to repress women's achievement.

In recognition of our culturally pluralistic society and its changing views toward the roles of men and women, the Iowa State Board of Public Instruction stated that one of the primary aims of the curriculum should be to reduce and eliminate stereotyping and bias on the basis of sex, race or national origin. To implement this goal, a

booklet Multi-cultural, Non-sexist Curriculum Guidelines for Iowa Schools (1976) was developed. Included was this definition:

Non-Sexist Education - is the educational process in a school district, or schools therein, from early childhood through adult education, by which all persons gain knowledge of, respect and appreciation for, the historical and contemporary contributions of women, as well as men, to present civilization. This educational process reflects the wide variety of roles and life styles open to women in today's society and conditions neither boys nor girls for stereotyped masculine-feminine career roles of life styles. (p. 6)

There is a slow movement toward a social order where diversity of choice becomes more acceptable as it becomes more prevalent. But failure to fully utilize the talents, potential and abilities of women and men diminishes the total productive effort. It deprives the economy of all workers needed for vital domestic programs. It also has a depressing effect on the entire job structure and results in a lack of self-fulfillment and waste of human potential (Feingold, 1975).

The educational system is one of the most important instruments in creating equality between the sexes, as it is in creating equality among different social, economic, and geographic groups. Feingold (1975) proposed:

If we want to change society, we can begin by changing the kind of people we are and the kind of children we raise. Until a society is willing to raise its boys and girls with equal opportunity to choose roles for themselves - without being conditioned into a stereotype of what seems appropriate for a man or a woman - it will simply be impossible to separate the effects of biology from the effects of cultural conditioning. (p. 18)

While it was the status of women that led to the recent changes, stereotypic impressions of both sexes maintain the status quo and both sexes suffer from ineffective use of human potential.

Career education objectives relative to sex-stereotyping

One of the reasons that the whole area of sex and jobs became such a contentious issue was that sex-role stereotyping had been practiced for so long, and was consciously and unconsciously reinforced by society at large. The whole issue requires that people learn new ways of thinking about jobs and what are now acceptable male/female roles and behaviors (E.B.C.E. Student Career Guide, 1977).

A list of occupations could easily be classified as to masculine and feminine categories. Occupations are linked to sex roles. People are placed in occupations according to imagined characteristics of each sex. Men are thought to be stronger, more intelligent, more aggressive while women are considered more nurturing, more understanding and gentler (Duberman, 1975). The various census tallies have clearly demonstrated how differentially men and women are employed.

Extensive studies by the Human Engineering Laboratory show that many women have the aptitude to perform jobs that have been traditionally dominated by men, it was reported by Winfield (1975). Of the 22 aptitude and knowledge areas measured, there were no significant sex differences in 14, women excelled in 6 and men excelled in only 2 - grip and structural visualization. The findings indicated there is no field which can claim to be the exclusive domain of either sex.

In its assessment of career and occupational development, the National Assessment of Educational Progress (NAEP) examined work-related skills and knowledge of American adults ages 26-35 (1976). The groups were compared on income, education, community, race, and sex. There were no sex differences reported on two exercises, males did better on three and females on one. These differences were explained by the areas of experience of the respective sex.

The adults who took part in this assessment would have completed high school in the late 1950's and 1960's. Career education was not a part of the high school curriculum in that period, and some of those who did not continue their formal education beyond high school lacked the opportunity to learn about some of the occupations open to them. The NAEP report (1976) posed that it would be interesting to see if performance levels change as career education becomes more and more emphasized. (p. 50)

Title IX of the 1972 Education Amendments states that, "No person ...shall, on the basis of sex, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance." (Lerner, 1976) This legislation outlaws many practices resulting in the dualism that currently exists in most vocational programs. Traditional stereotypes about the proper work for men and women have greatly restricted the aspirations and opportunities of the female and male secondary school students.

In order to promote the development and implementation of comprehensive career education plans in the state of Iowa, the Department of Public Instruction established guidelines in 1977 (Guidelines, Note 2). One of the goals was to meet the career education needs of special groups and eliminate the stereotyping of career opportunities by sex.

Minnesota developed a plan for the reduction of sex bias and sex-role stereotyping in vocational education (Five Year Plan, Note 3). Among the objectives was one to increase the percentage of women and men in non-traditional job categories, to such an extent, that their numbers are an accurate reflection of the job market. The criteria to be used was to have the greatest percentage increase in those job categories which have had more than 80% of their personnel made up of employees of one sex.

In the original proposal to promote equal vocational education in Texas, it was anticipated that the model developed would also include recruiting males into the traditionally female vocational areas (Lerner, 1976). While it was recognized that this is an area that needed to be dealt with, the funding agency felt that this model would be too cumbersome under the terms of the grant. The project confined itself to recruitment of females to vocational programs.

Boys have always known that they would seek employment in adulthood, so planning for occupational endeavors has caused no conflict. They have expected for most of their lives that they would have to decide on an occupational choice at the appropriate time. Girls, on the other hand, through reinforcement of a basic conflict, have been indirectly influenced to avoid deciding (Bingham, 1975).

Counselors and teachers have a responsibility to encourage pioneers in non-traditional occupational choices and preparation for employment. When a pioneer enters a course previously considered for one sex only, appropriate measures should be taken to make the stranger and the rest of the class feel comfortable with each other (EPIE, 1975).

The unique contribution of the counselors in expanding aspirations must be carefully considered. A prescription to change the guidance role from treatment to development has been suggested (Harris-Bowlsbey, 1975). In 1951, Super recommended a new definition of career guidance which still proves acceptable today:

Vocational guidance is the process of helping a person to develop and accept an integrated and adequate picture of himself and his role in the world of work, to test this concept against reality, and to convert it into a reality, with satisfaction to himself and benefit to society.

Previous Research on Occupational Sex-Stereotyping

The contemporary concern with woman's role in society suggests questions regarding the early learning of sex-role occupational stereotypes. Girls of 6 or 7 are little influenced by the growing women's liberation movement, but they may quite likely be developing a concept of femaleness (Looft, 1971). In this early and informal study, Looft tried to determine early vocational aspirations for boys and girls. The sample consisted of 33 boys and 33 girls in first and second grade classes. Each child was informally asked, "What would you like to be when you grow up?" and then, "Now, what do you think you really will be

when you are an adult?" This second question was intended to focus the child's perception of a difference between what he wanted to be and what he really expected to be in adulthood.

To the first question, the boys nominated 18 different occupations and the girls only 8 different occupations. To the second question, 25 boys changed their response and only 14 girls changed. Looft concluded that sex differences in vocational aspirations seem to develop early in childhood. Girls learn early that certain adult statuses are open to them and these are few in number, reflecting a recognition of traditional sex-role expectations.

Schlossberg and Goodman (1972) designed a study to discover the degree to which elementary school children hold stereotypes about occupations based on sex. The differences between kindergartners and sixth graders, between boys and girls, and between two elementary schools were studied. All the children were asked to respond to drawings, representing work settings of six occupations traditionally considered feminine and six occupations traditionally considered masculine.

Each child was asked, "Could a man work here? Could a woman work here?" The order of these questions was random. The wording of "could" rather than "does" or "should" was used to enable the children to free themselves from the perceptions of present occupational segregation and from their feelings about sex-appropriate occupations. A child's response was considered to be stereotyped with the use of any "No's". The data indicated no appreciable increase in stereotyping from kindergarten to sixth grade, women were more often excluded from men's jobs

than men were excluded from women's jobs, and there was disparity between the amount of stereotyping of one occupation and another.

Shinar (1975) examined college students' perceptions of occupations as feminine, masculine, or neutral. A common basis for defining occupations as masculine or feminine has been to assess the relative proportion of men and women in a particular occupation. This study was designed to elicit the subjects' sexual stereotypes of occupations. The sample consisted of 60 male and 60 female undergraduate students. A list of 129 occupations was constructed on Roe's (1956) classification of occupations, with three levels represented. A 7-point ranking scale was used to represent the degree to which occupations were perceived as (1) masculine, (4) neutral, or (7) feminine. Pearson product moment correlations were computed across all occupations, with a correlation of .97 or better reported for the mean ratings of men and women subjects. Using analysis of variance, the significant main effect of the subject's sex ($p < .001$) on sexual stereotyping of occupations indicates that women perceive occupations as masculine to a lesser degree than male subjects do. The results of this study strongly suggested that sex labeling of occupations also seems to be a self-perpetuating and self-promoting system in that the proportion of men and women in various occupations parallels the traditional beliefs about the sex-related attributes required to perform these jobs (Shinar, 1975).

A developmental study by Shepard and Hess (1975) sought the attitudes of kindergarten children, eighth graders, college students, and adults toward sex role division of adult occupations. Specifically

they were interested in how much these attitudes deviated from the traditional American viewpoint.

Traditionality was defined in terms of the judgments of 50 female and 50 male college students. They were asked to indicate for 44 occupations whether, according to the traditional American viewpoint, it should properly be undertaken by a male, a female, or either one. A 60% agreement between male and female was used as the criteria to retain the occupation on the list. Only three occupations were traditionally viewed as appropriate roles for either sex. All subjects were asked to indicate for each item, whether they thought the role should properly be undertaken by a male, a female, or either. Use of the word "should" provided the most conservative test of the hypothesis that liberalization had taken place. Sex differences were significant with females being more liberal than males. Overall liberality increased from kindergarten through eighth grade to college and then decreased in the adult sample. The extreme conservatism of kindergarten students should be kept in mind by educators planning early elementary school programs in general and career education in particular. The eighth graders, at an age when, in Piagetian terms, they should be capable of formal logical operations, they are able to conceive of the world as it might be as well as it is.

A study was undertaken to examine the differences among the views of children of occupational roles as they varied with age, gender, and location by Scheresky (1975). A stratified random sample was taken to generate groups of fifteen boys and fifteen girls at the ages of six,

eight, and ten years, at each of the locations: rural, suburban, and central city. This total sample of 270 was interviewed using photographs of fifteen occupations. The degree of stereotyping was high among all subjects, with the data revealing no significant differences among any of the groups. Scheresky suggested further research using different age groups and comparing schools that have career education programs with those that do not have career education.

A determination of the level of sex-stereotyping and what methods of changing sex-role stereotypes were most salient at different ages were the main areas of interest for Garrett (1977). In an earlier study, Garrett (Note 4) had reported on the norming phase. With a sample of 355 first, third, and fifth grade children and 40 occupations, the older children were significantly more flexible in their stereotypes than younger children. Following a modification phase of reading stories to the treatment group children with sex-reversed models, the subjects were post-tested. For each of the occupations, subjects were asked to indicate who "can" do each job and who "should" do each job. Order of directions ("can" or "should") was counterbalanced across grade, sex, and treatment. There were no sex differences and children's responses to "should" were significantly more stereotyped than their responses to "can". Older children were more flexible in responses.

Garrett (1977) posited that the consistent sex differences in actual job preferences apparently do not result from differential occupational knowledge on the part of boys and girls. It was also presented that many previous studies had utilized forced choice, dichotomous

responses which did not measure the flexibility of sex-related stereotypes. Neutral choices should be included. In this study, 40 occupations representing culturally male, female, and neutral jobs, as well as three levels of educational requirements were used. Subjects were tested within their regular classroom. The subjects' answer sheets consisted of a five-point rating scale utilizing both words and pictures. The experimenter asked the subjects, "Who do you think can be (each of the 40 occupations)?" To determine internal consistency, the scoring of the female-stereotyped items was reversed. Hence a score of five meant maximum stereotyping by sex.

These children saw few occupations as being for women and many as being for men. The older children tended to have less rigid gender-stereotypes than the younger ones. Neither sex was more stereotyped in overall assignment of occupations.

In an evaluation of career education programs in Iowa, Brooks (1976) reported on strategies and results. Several items were rated on a scale of 1 "definitely untrue" to 7 "definitely true". On item #7, "Has career education been of value in combating academic sex-role stereotyping?" the mean score for all persons was 4.479, or "slightly skewed towards generally true." Significant differences were reported between participants and non-participants, and also between junior and senior high teachers.

Limitations of the previous studies of occupational sex-stereotyping have included relatively small numbers in the sample, or narrow age span of subjects. No studies were found that investigated the effects of career education programs on reducing occupational sex-stereotyping.

Summary

The review of literature has centered on four major topics: (1) objectives of career education, (2) sex-role and sex-stereotyping, (3) career education related to sex-stereotyping, and (4) previous research on occupational sex-stereotyping.

The specific areas of self-development and occupational choice were considered among the objectives of career education, and the related theories of cognitive developmental and social learning models. The emphasis of each state plan that all students should benefit from informed choices was underlined.

A brief review was made of the relevance of the women's movement to reduce sex-stereotyping, with the values reported on current gender-related characteristics. The sequence of pertinent federal legislation was presented, culminating in the impact of Title IX.

The effects of education on stereotyping and the specific career education objectives relative to sex-stereotyping were also discussed briefly. The importance of the educational system in fostering equality between the sexes was stressed. Studies of aptitude measurement yielded mixed findings, with no clear superiority of either sex reported. The NAEP report (1976) suggested future research of performance levels as career education becomes more widespread. The critical role of counselors was reviewed in relation to emerging emphasis.

The review of previous related research indicated a need for current and continued research of occupational sex-stereotyping. Proceeding on the recommendation of Scheresky to ascertain the effects of career

education on occupational sex-stereotyping and utilizing the model presented by Garrett (1977), this research project was designed to extend and complement the previous research efforts.

Experimental research in every discipline requires a foundation in theory, a consistent terminology, and a defensible logic in the method. This chapter has attempted to present a base for the first two of those objectives and the third is presented in the next chapter.

CHAPTER III. METHODOLOGY AND DESIGN

The problem of the study was two-fold: (1) to determine the extent of occupational sex-stereotyping in Iowa school students, and (2) to measure the effectiveness of career education programs on the reduction of occupational sex-stereotyping. This chapter contains a description of the methodology used to collect the data and the research design used to analyze the data.

Review of Previous Instruments

Garrett's (1977) study of the Development of Gender-Stereotyping of Adult Occupations measured similar data as included in this study. The measures presented in other studies were limited as to kind of responses available to subjects or to interview technique. The intent of this study was to include a large sample and four levels of subjects, to provide responses for processing by a machine-scoreable answer sheet. A request was made to Garrett for her permission to use a modified form of her instrument and a letter granting permission, received (Appendix A).

Two different forms of the instrument were developed: one for grade levels 3 and 6, and the other for grade levels 9 and 12. The grades 3 and 6 version consisted of 30 occupations with a short definition. The 9 and 12 grade levels version consisted of 45 occupations, without definitions. The first thirty occupations were identical on both versions, which were alike in all other respects, except those previously noted.

Lists of occupations were compiled representing each of the fifteen occupational clusters. Different levels of education were included, to avoid social economic bias: high school graduation, community college or technical school, and four year baccalaureate or higher education levels. A panel of nine members, consisting of teachers, counselors, and vocational center instructors, was asked to select three occupations from a list of seven in each of the occupational clusters. Their criteria was to select occupations that a typical third or sixth grade student would be well acquainted with from their associations, readings, school, television, and other experiences. The 45 occupations selected were used for the high school instrument, with those most often reported used for the 30 elementary choices. A five-point Likert scale was chosen, adapted from Garrett's instrument. The choices possible were: "Only women," "More women than men," "Equal men and women," "More men than women," and "Only men." A pictorial representation of these choices was placed across the top of the instrument (Appendix B). The response choices of "A-E" were converted to 1 - 5 in the scoring process.

A panel of thirty teachers and administrators from a career education project was asked to review the instrument for suitability. Additionally, a panel of seven experts in the field of occupational sex-stereotyping was asked to review and make comments. One member did not respond. This expert panel was also asked to indicate which of the occupations ten years previously were considered as predominantly or traditionally a "woman's job". The scores on these items were reversed to yield an overall measure of occupational sex-stereotyping.

Pilot of Instrument

The instrument was piloted within a single school system, at the four grade levels, to determine difficulty in administration and clarity of directions. This school was not included in the study for acquisition of data included in the ultimate analysis, but had a career education program for five years. One modification of procedure included in this study was to use a different student answer sheet. An addition was made to the teacher's directions to caution them against calling attention to the purpose of the survey. A final testing version was selected and reproduced in sufficient quantity for the project and control groups.

Population and Sample

Broadly defined, the target population would be Iowa school students. However, due to the present status of career education and the manner in which schools and individuals were selected, the actual population was grade levels 3, 6, 9, and 12 of school districts within Merged Area V of Iowa. Based on the present situation the sample was purposive. The grade levels were chosen to correspond to the four phases of career development of the Iowa plan for career education: awareness, accommodation, exploration, and preparation. Merged Area V was selected because there were more schools that had career education programs for three or more years. This was to insure that students had the opportunity and activities to meet the objectives of each phase of career development. Five of the schools within Merged Area V were concurrently participating in an assessment and evaluation of their career

education programs, with the researcher serving as project director. Students from these five schools were chosen as ex post facto experimental treatment group. Many schools within Merged Area V had participated in Federal and state funded career education projects for up to five years. This area was considered to have made the most progress within Iowa in career education. Students selected for the control group were attending schools in Merged Area V which had no formal recognized career education program and were willing to participate. The area consists mostly of rural communities and highly productive farmland.

Collection of Data

Materials were distributed in packets containing instruments, answer sheets, and directions to teachers of grades 3, 6, 9, and 12 in the selected schools. Within each school district the researcher met with all teachers, explained the purpose of the study and gave them instructions for returning the completed answer sheets.

The instrument was administered to the students during late April and May of 1977. The regular teacher of the students administered the instrument wherever possible, with assistance from counselors and the researcher. Each answer sheet had provision for identification of the school, grade level, and sex of each subject. The answer sheets were collected and visually checked for proper identification. The 1675 useable answer sheets were submitted to a test scoring service for optical scanning. The data were transferred to magnetic tape for statistical analysis. The distribution of the sample in terms of grade level and treatment group is located in Table 1.

Table 1. Distribution of sample by grade level and treatment

Grade Level	Career Education		Total
	Program	No Program	
3	235	102	337
6	250	120	370
9	422	129	551
12	288	129	417
Total	1195	480	1675

Because of the proximity to the end of the school year, one project school was unable to administer the instrument to grade level 12 students. Additionally, one of the project schools administered the instrument to only the grade 9 students.

Analysis of Data

Initial analysis of the student responses to the instrument yielded the mean, standard deviation, and standard error for each occupation. These occupation specific responses based on the original scale of "only women" to "only men" are reported in Appendix C.

The consensus of the expert panel was that eight occupations were traditionally considered a "woman's job". Accordingly, the rating scales were reversed (1-5 became 5-1) on the following items: secretary, piano teacher, homemaker, grocery checker, nurse, waitress/waiter, sewing machine operator, and school teacher. Then the mean was calculated of each student's ratings of the occupations to generate an overall

occupational sex-stereotyping index (criterion score). Thus a "traditional" rating for secretary of 1 or 2 was converted to 5 or 4, indicating a sex-stereotyped response. After inversion of scale for the eight occupations, ratings of 1 or 2 indicated reverse stereotyping.

All statistical analyses were conducted by the researcher using the Statistical Analysis System '76 (SAS76) and the Statistical Package for the Social Sciences (SPSS) computer programs of the Iowa State University Computation Center. Using cell means with school as the experimental unit, all three hypotheses were tested using SAS76 for a three-factor analysis of variance with repeated measures (Winer, 1962, p. 319).

These analyses were carried out with respect to the following complete model:

$$Y_{ijklm} = \mu + \alpha_i + \beta_{j(i)} + \gamma_k + \alpha\gamma_{ik} + \alpha\beta\gamma_{jk(i)} + \delta_l + \alpha\delta_{il} \\ + \alpha\beta\delta_{jl(i)} + \gamma\delta_{kl} + \alpha\gamma\delta_{ikl} + \epsilon_m(ijkl)$$

where

- Y_{ijklm} = criterion score (occupational sex-stereotyping index)
- μ = overall grand mean
- α_i = effect of the i^{th} treatment group
- i = 1 for career education program
- i = 2 for no career education program
- $\beta_{j(i)}$ = effect of the j^{th} school within the i^{th} treatment group
- $j(i)$ = 1 to 5(1) for the career education program schools
- $j(i)$ = 6 to 9(2) for the no career education program schools
- γ_k = effect of the k^{th} grade level
- k = 1 for grade level 3

$k = 2$ for grade level 6

$k = 3$ for grade level 9

$k = 4$ for grade level 12

$\alpha\gamma_{ik}$ = interaction of the i^{th} treatment group with the k^{th} grade

$\alpha\beta\gamma_{jk(i)}$ = interaction of the j^{th} school with the k^{th} grade within i^{th} treatment group

δ_l = effect of the l^{th} sex

$l = 1$ for males

$l = 2$ for females

$\alpha\delta_{il}$ = interaction of the i^{th} treatment group with the l^{th} sex

$\alpha\beta\delta_{jl(i)}$ = interaction of the j^{th} school with the l^{th} sex within the i^{th} treatment group

$\gamma\delta_{kl}$ = interaction of the k^{th} grade with the l^{th} sex

$\alpha\gamma\delta_{ikl}$ = interaction of the i^{th} treatment with the k^{th} grade with the l^{th} sex

$\epsilon_m(ijkl)$ = random error associated with the criterion score, is normally and independently distributed, with a mean of 0 and a variance of σ^2

The above model considers school as the experimental unit. The analysis utilized SAS76 because of its ability to handle the nested features. Because of the nested feature, or repeated measures, used in this study, schools can be included in a model, or treatment can be included, but not both when student is the unit of analysis. All of the hypotheses were tested utilizing both school and student as the unit of analysis (experimental unit).

Students may also be considered as the experimental units. One of the main arguments is that students may have individual interactions with the teacher and other students not included in the general classroom situation. Therefore, further analysis was completed using student as the experimental unit and pooling, or removing, the school or treatment factors separately. The analyses using student as experimental unit considered: (1) school, grade, and sex with respective interactions, and (2) treatment, grade, and sex with respective interactions.

Summary

Chapter III delineated the methodology used to collect the data and the design used to analyze the data. The occupational sex-stereotyping instrument, how it was developed, and the scale used were discussed briefly. The choice of panels to verify the instrument was reviewed. The pilot study of the instrument and the modifications made were outlined. The population and sample were described. The manner used for distribution, and administration of instrument, and collection of data were covered. The model used for analysis of data and the procedures used for the statistical analysis of the data were presented.

CHAPTER IV. ANALYSIS AND FINDINGS

Data analysis was performed to focus on the extent of occupational sex-stereotyping and the differences exhibited by the three main effects: grade level, sex, and (treatment) career education program. A three-factor analysis of variance with repeated measures was used to test all three hypotheses presented in Chapter I. All relevant interactions were tested. Hypotheses were tested at the .05 level of significance. When this level was met, hypotheses were further tested at the .01 level of significance.

Analysis of the student's occupational sex-stereotyping index yielded group or cell means categorized by grade level, sex, school within treatment, and treatment. The group means and standard deviations of occupational sex-stereotyping index are displayed in Table 2.

Analysis of Complete Statistical Model

The initial analysis of variance was completed using SAS76 because of its ability to handle the nested feature present within this study. Due to the empty cells of schools 1 and 2, early analysis runs were made to determine the effects of dropping these schools from the analysis. There were no apparent differences found, therefore these schools were dropped from all subsequent analysis. The findings of the SAS76 analysis of variance is found in Table 3.

Table 2. Group means of occupational sex-stereotyping index (1675 students)

School	Grade	3		6		9		12		
		male	female	male	female	male	female	male	female	
1		x.xxxx	x.xxxx	x.xxxx	x.xxxx	3.5614 (.2124) ^a	3.5089 (.2680)	x.xxxx	x.xxxx	
2		3.8023 (.2885)	3.7549 (.3152)	3.7605 (.3290)	3.5510 (.2261)	3.6610 (.3196)	3.5935 (.2439)	x.xxxx	x.xxxx	
3		3.6170 (.2435)	3.7752 (.3569)	3.8630 (.1711)	3.5386 (.2264)	3.6886 (.2477)	3.6660 (.1951)	3.7000 (.3629)	3.6289 (.3541)	
4		3.7086 (.2628)	3.7924 (.3057)	3.7256 (.2447)	3.7084 (.2505)	3.6608 (.2920)	3.4914 (.2676)	3.6067 (.3109)	3.4339 (.2481)	
5		3.7859 (.2610)	3.7451 (.3051)	3.6758 (.3297)	3.6322 (.2992)	3.6830 (.3182)	3.5267 (.2224)	3.6914 (.2877)	3.5304 (.2848)	Treatment 3.6368 (.2973)
6		3.8260 (.3465)	3.8859 (.2456)	3.7625 (.1647)	3.6813 (.2317)	3.6176 (.1500)	3.4462 (.2465)	3.6073 (.3353)	3.4154 (.1834)	
7		3.9332 (.1894)	3.7902 (.2062)	3.7542 (.2260)	3.6484 (.2049)	3.7828 (.3149)	3.6174 (.2670)	3.5213 (.2859)	3.5057 (.3491)	
8		3.5193 (.3632)	3.8417 (.3007)	3.6836 (.2789)	3.5970 (.2807)	3.6667 (.2848)	3.3991 (.2693)	3.9333 (0.0)	3.2600 (.5101)	
9		3.6554 (.3801)	3.5754 (.4354)	3.6959 (.4985)	3.3800 (.2256)	3.7784 (.2793)	3.7429 (.3166)	3.5022 (.2631)	3.4483 (.2944)	Control 3.6375 (.3165)

^aFigures within parantheses are standard deviations.

Table 3. Analysis of variance of occupational sex-stereotyping index for complete model

Source of Variation	df	Sum of Squares	Mean Square	F
Treatment	1	.00066	.00066	<1
Schools (Treatment)	5	.03428	.00685	
Grade	3	.29689	.00696	6.782**
Treatment X Grade	3	.02089	.00696	<1
School X Grade (Treatment)	15	.21887	.01459	
Sex	1	.11776	.11776	21.807**
Treatment X Sex	1	.00171	.00171	<1
School X Sex (Treatment)	5	.02717	.00543	
Grade X Sex	3	.11047	.03682	2.183
Treatment X Grade X Sex	3	.01625	.00541	<1
Residual	15	.25292	.01686	
Corrected Total	55	1.09792	.01996	

Using cell or groups means as the experimental unit, all three hypotheses of interest were tested. For the purpose of presentation and clarity, each hypothesis will be restated and the relevant statistics noted.

Research hypothesis I

It was hypothesized that there are no significant differences in the extent of occupational sex-stereotyping among students in grade levels 3, 6, 9, and 12.

The hypothesis presented combines grade levels across all schools and treatments to determine if at least one pair of group means is different. There was a significant difference indicated for grade level as

a main effect. An F of 6.782 for df 3,15 is highly significant beyond the .01 level. The null hypothesis was rejected. An inspection of the group means for grade level determined that the means are progressively smaller as grade level is increased.

Research hypothesis II

It was hypothesized that there is no significant difference in the extent of occupational sex-stereotyping between male and female students.

As indicated in Table 3, there was a significant difference based on sex. An F of 21.807 with df of 1,5 is highly significant beyond the .01 level. The null hypothesis was rejected. A review of the group means denoted the index for females was smaller than for males.

Research hypothesis III

It was hypothesized that there is no significant difference in the extent of occupational sex-stereotyping between students who have had a career education program and those that have not.

The F was less than unity for treatment main effect and therefore non-significant. The null hypothesis was retained.

Analysis of Reduced Models

The remaining analyses were conducted using the 1503 individual students as the experimental unit utilizing SPSS. Two factors, school and treatment, were individually dropped or pooled in the subsequent analyses of variance to verify the previous run using group means.

School effect removed

This analysis was conducted to determine if there was any significant treatment effect when individual students were used as the unit of analysis. The results of the SPSS analysis assuming no school effect are in Table 4.

Table 4. Analysis of variance of occupational sex-stereotyping index assuming no school effect

Source of Variation	Sum of Squares	df	Mean Square	F	Significance
Main effects		5			
Treatment	0.005	1	0.005	0.066	.798
Grade	8.801	3	2.934	35.404**	<.001
Sex	2.202	1	2.202	26.576**	<.001
2-way interactions		7			
Treatment X Grade	.679	3	.226	2.731*	.043
Treatment X Sex	.003	1	.003	.031	.860
Grade X Sex	1.625	3	.542	6.536**	<.001
3-way interactions		3			
Treatment X Grade X Sex	.149	3	.050	.598	.616
Residual	123.210	1487	.083		
Total	138.759	1502	.092		

Using student as unit of analysis and assuming no school effect grade and sex factors were significant beyond the .01 level. Inspection of the above findings indicates that treatment was a non-significant effect. Interaction of treatment and grade level was significant at the .05 level. This interaction is represented in Figure 1. Interaction of

grade and sex was significant beyond the .01 level. This interaction is illustrated in Figure 2.

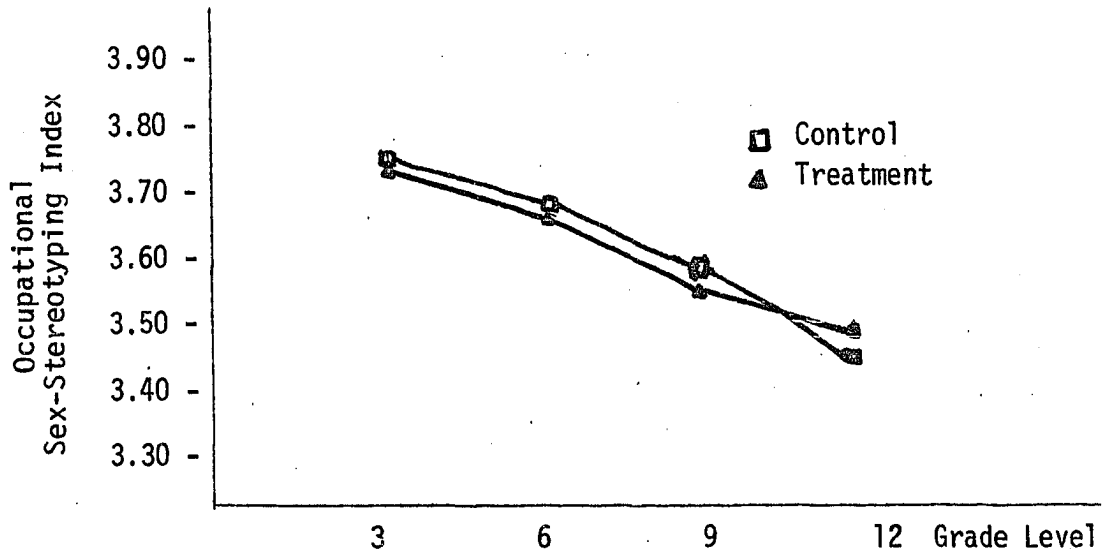


Figure 1. Treatment X Grade Level Interaction

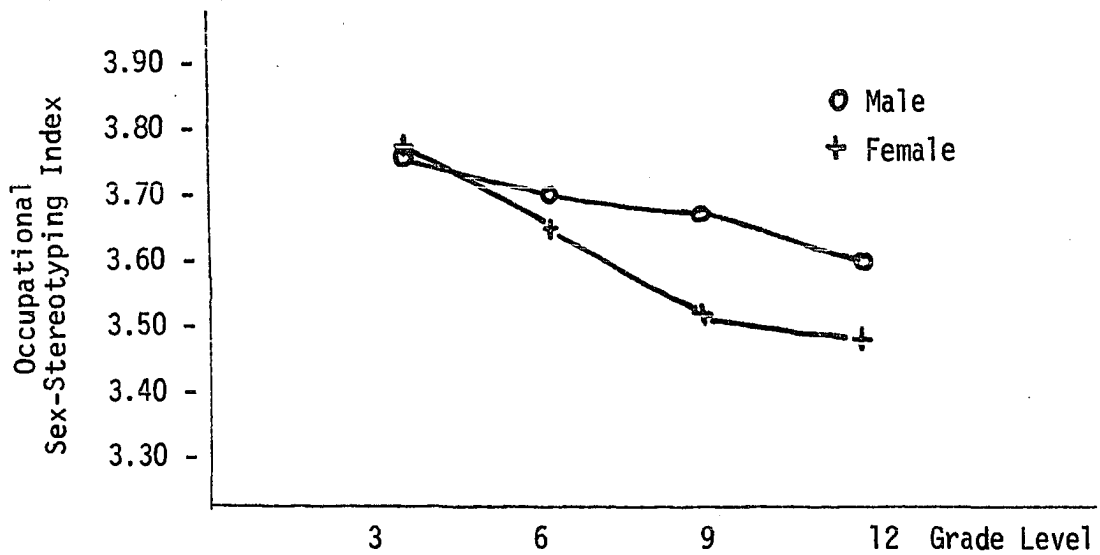


Figure 2. Sex X Grade Level Interaction

Treatment effect removed

In order to ascertain if there was any school effect confounding the results, treatment effect which had been determined to be non-significant, was dropped from the analysis. The following alternate hypothesis was posed:

Research hypothesis IV (alternate)

It was hypothesized that there are no significant differences in the extent of occupational sex-stereotyping among students from different schools.

This analysis used individual student as unit of analysis or experimental unit. The findings of the analysis assuming no treatment effect are presented in Table 5.

Table 5. Analysis of variance of occupational sex-stereotyping index assuming no treatment effect

Source of Variation	Sum of Squares	df	Mean Square	F	Significance
Main effects		10			
School	.485	6	.081	.998	.425
Grade	3.168	3	1.056	13.052**	<.001
Sex	1.326	1	1.326	16.389**	<.001
2-way interactions		27			
School X Grade	3.507	18	.195	2.408**	<.001
School X Sex	.254	6	.042	.523	.791
Grade X Sex	1.200	3	.400	4.945**	.002
3-way interactions		18			
School X Grade X Sex	2.022	18	.112	1.388	.127
Residual	117.091	1447	.081		
Total	138.759	1502	.092		

Assuming there was no treatment effect with student as unit of analysis, the level of F for school effect was non-significant. The null hypothesis was retained. Therefore, there were no significant differences among the various schools that participated in the study. There was significant interaction present between school and grade level beyond the .01 level. This interaction is depicted in Figure 3. There was no significant three-way interaction present among school, grade, and sex. The combined group means by grade level and sex are found in Table 6.

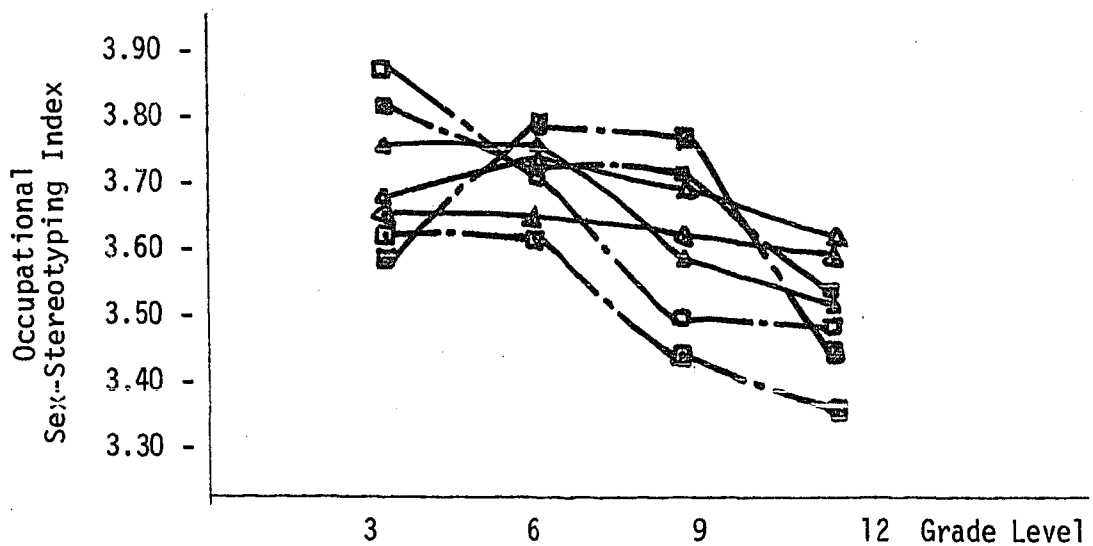


Figure 3. School X Grade Level Interaction

Table 6. Combined group means by grade level and sex of occupational sex stereotyping index (1503 students)

Grade	Male		Female		Total	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
3	3.7470	.3011	3.7671	.3038	3.7577	.3021
6	3.7152	.2945	3.6633	.2615	3.6874	.2781
9	3.6894	.2948	3.5213	.2587	3.6028	.2903
12	3.6146	.3015	3.4819	.2918	3.5404	.3030
Total	3.6873	.3009	3.5876	.2984	3.6342	.3040

Inspection of Table 6 reveals at grade level 3 that female index is slightly higher than male, but lower for grade levels 6, 9, and 12.

Summary

From the analysis of data presented in this chapter, the main effects found to be significant were grade level and sex. Reviewing the direction of significance for grade level indicated that the higher grades had a less sex-stereotyped response to occupations. Concurrently, females had a smaller occupational sex-stereotyped response than males. There was also significant interaction between these two (grade and sex) main effects. Both treatment and school effects had significant interactions with grade level. There were no significant three-way interactions.

CHAPTER V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Chapters I through IV delineated this research study. This chapter summarizes the procedures and details, discusses conclusions, and presents recommendations for further research.

Summary

The subject of this research was students' perceptions of occupational sex-stereotypes at the time of the study (May 1977). The problem of the study was two-fold: (1) To determine the extent of occupational sex-stereotyping in Iowa school students, and (2) To measure the effectiveness of career education programs on the reduction of occupational sex-stereotyping. The specific factors considered were grade level in school, sex, and effect of career education program on occupational sex-stereotypes.

The purpose of the study was to assist educators in determining the extent to which students exhibit occupational sex-stereotyping and evaluate the effectiveness of career education programs on reducing that measure. Could young people make more reasoned and deliberate occupational choices as a result of these career education programs?

The foundation of this study was based on two strong social forces that were simultaneously sweeping the country at the time of the research: career education and the feminism movement. The dual concerns extant in education of accountability and evaluation dictated the need to measure the effectiveness of career education programs. The controversy of sexism focused the area of concern on occupational sex-stereotyping.

Nine schools participated in the study with 1675 students' responses collected for data. Five of the schools had recognized career education programs of three or more years. Four of the schools had no formal career education program. A purposive sample was used to insure that students selected had the opportunity and activities to meet the objectives of each phase of career development. The sample included all students of grade level 3, 6, 9, and 12 of the schools selected from Merged Area V of Iowa.

An occupational sex-stereotyping inventory was developed to measure the occupational role perceptions of the students. This was administered by the regular classroom teacher. The inventory included a list of thirty occupations, and a short definition for the elementary grades. For each occupation the student could select a response ranging from "1 - only women", through "3 - equal men and women", to "5 - only men." The scale was reversed on eight occupations that had been judged as traditionally a "woman's job" by a panel of experts (1 to 5 became 5 to 1). The mean of the 30 occupations rated then yielded an overall occupational sex-stereotyping index for each student. Thus a "traditional" rating of 1 or 2 for nurse was converted to a 5 or 4, indicating a sex-stereotyped response. After inversion of scale for the eight occupations, ratings of 1 or 2 indicated reverse stereotyping.

It should be noted that an important feature of the list of occupations developed by this study is that the list was cluster-based and as such represents a theoretical continuum of occupational fields and educational levels rather than a random selection of occupational titles.

The three-way analysis of variance with repeated measure used for the statistical analysis of the data revealed significant differences in the students' responses to the occupational sex-stereotyping inventory, for sex and grade level main effects.

Delimitations of the study

Inferences from the analysis of the data obtained in this study are valid if made to the particular populations within Merged Area V of Iowa from which the data was collected. Any inferences made to any other populations of students will be subject to greater error. The purposive sample was selected to study the effects under specified conditions and is limited in the generalizations that may be implied.

Certain demographic variables were not considered in this research, among them: religion, race/ethnic background, social economic conditions, size of community, or region of the country. The factors of interest for which data was collected and analysis conducted included: grade level, sex, career education program, and school.

Conclusions

The initial analysis was run using group means as the experimental unit. The groups were classified into sex by grade level by school within treatment. The justification for using group means was that classes received treatment as a group. This analysis yielded significant main effects for grade level and sex. Treatment main effect was non-significant, as were all interactions.

The subsequent analyses were conducted using student as the unit of analysis. The basis for using student as the observational unit was

that treatment is unique for each student. This assumption was predicated on the concept of individualized instruction. These a priori choices were selected to cross-verify results. The conclusions of the study are discussed in terms of the hypotheses tested.

Research hypothesis I

It was hypothesized that there are no significant differences in the extent of occupational sex-stereotyping among students in grade levels 3, 6, 9, and 12.

Conclusion I

The students in higher grade levels had significantly less stereotyped responses to occupations than did the lower grade levels.

Discussion There was a fairly even and readily apparent lowering of the index for each grade level measured. Overall liberality in rating occupations increased from grade level 3 to grade level 12. This finding was consistent with previous research. (Garrett, Ein, & Tremaine, 1977; Shepard & Hess, 1975; Vondracek & Kirchner, 1974; Garrett, Note 4.)

The results of the lowered occupational sex-stereotyping index with increase in grade level supported the cognitive-developmental or maturation theory. This implies an increasing flexibility of stereotypes with increasing cognitive sophistication, enabling a student to move from the use of a single set of polar categories for a concept to the use of abstractions.

The socialization or social learning theory denotes a more-fixed stereotyped as the student becomes older and has more reinforcement and internalization of the "proper" roles of adult life. This socialization

theory was rejected. What was manifest from the data was that students come to school with the highest degree of sex-stereotyping that they will ever exhibit. This has many implications for preschool intervention programs, the content of children's television, and the need for changes in the parent's attitudes.

Because of the apparent strength of grade level in effecting differences in the occupational sex-stereotyping index, all of the interactions were in conjunction with grade level; including those main effects (treatment and school) that did not have a significant effect of their own. These combinations of main effects that somehow, confusingly contribute to differences will be discussed separately with each main effect.

Research hypothesis II

It was hypothesized that there is no significant difference in the extent of occupational sex-stereotyping between male and female students.

Conclusion II

There was a significant difference in occupational sex-stereotyping based on sex.

Discussion After grade level 3, when the females averaged slightly higher than males, every later measurement registered a lowered index for the females. This difference became proportionally greater, as was clearly illustrated with the interaction graph.

The interaction of sex with grade level approached significance using group means for analysis, and reached a highly significant level ($p < .001$) using student as the unit of analysis. With both grade level

and sex having highly significant main effects, it was a paradigm to illustrate a high level of interaction between these two effects. This interaction may be explained in terms of the cognitive-developmental theory, with females earlier portraying an increasing cognitive capacity to hierarchically organize, to discriminate, and to classify using smaller units.

It is evident that the female students are receiving the message of the feminist movement and internalizing it. As early as the sixth grade, this significant difference in attitude was present. This study also suggests that the females are making more androgynous - "equal men and women" - choices rather than egocentric selections. The egocentric choices would denote that students were rating the occupations as more suited to their sex; or reverse-stereotype in the case of females. The recoding of the eight occupations considered as "women's jobs" corrected that possibility. Previous research indicated females tended to perceive all occupations as slightly more open to women than males did. (Garrett, Ein, & Tremaine, 1977; Schlossberg & Goodman, 1972; Shepard & Hess, 1975; Shinar, 1975.) In other words, female students seem to believe that they "could" perform a wider range of jobs than males are ready to give them credit for.

Research hypothesis III

It was hypothesized that there are no significant differences in the extent of occupational sex-stereotyping between students who have had a career education program and those who have not.

Conclusion III

There was no significant effect of career education programs to reduce occupational sex-stereotyping.

Discussion Although the review of literature highlighted career education objectives pertaining to self-development, none which dealt specifically with the removal of occupational sex-stereotyping, were promulgated a sufficient length of time prior to the collection of data. This research was undertaken because of the hope of many career educators that reducing occupational sex-stereotyping might be one of the salient outcomes of the programs. The specific efforts to promote a non-sexist education have been primarily a very recent feature. While students were selected from schools as having three or more years of career education program benefits, quite probably they did not have sufficient activities directed particularly to reducing sex-bias.

While there is no data base with which to make comparison, the extent of occupational sex-stereotyping may be closer to the goal than is realized. An overall grand mean of 3.36, with a mean of 3.54 for grade level 12, may be quite close to the realization of reduction of sex-bias in occupational roles. This places the index between "equal men and women" to slightly skewed toward "more men than women" rating.

At the time of this study, athletics were getting the prime attention of action under Title IX provisions. The thrust of changes will likely enter the whole educational field in the future, including career and occupational programs.

Affirmative action has been given general approval within the protocol of Title IX, but affirmative action to change attitudes is still

missing. It is necessary to prioritize objectives to insure that efforts are focused on those goals considered as more important than others. The objective of reducing and preventing sex-stereotyping, including occupational, has been deemed highly important by many citizens of this country.

The interaction of treatment effect and grade level was depicted graphically by the treatment and control groups paralleling each other from grade level 3 to 9, with non-significant differences. Between grade level 9 and 12, the control group crossed and went below the treatment group in rating. This significant interaction ($p < .05$) between treatment and grade level indicates that while no difference exists between the treatment groups, (treatment and control) a slight but significant difference occurred within the control group between grade level 9 and 12. This artifact most probably is due to the small comparative number in the control group exhibiting a random or spurious deviation.

Research hypothesis IV (alternate)

It was hypothesized that there are no significant differences in the extent of occupational sex-stereotyping among students from different schools.

Conclusion IV

There were no significant differences in occupational sex-stereotyping among the various schools that participated in the study.

Discussion The most prominent aspect of this analysis was that at grade level 6 all schools were most nearly alike, but the varying changes that took place during the junior high school years widely dispersed the indices by the grade level 9 measure. Some schools were

evidently encouraging this exploratory phase of career education, while others were perhaps limiting such opportunities for their students.

There was significant interaction present between school and grade level. This was graphically described and revealed a confusion of non-uniform progress within many schools. These erratic patterns of change within school may be compared to those exhibited when contrasting achievement grade equivalent scores of different schools.

Although the results of the analysis of variance exhibited small differences between means, they are consistent and warrant explication. Two observations may be made regarding the reported results:

1. When the operant verb is "could" for students to select which sex is appropriate for an occupation, higher grade levels indicate less stereotyped choices than lower grade levels.
2. Under the same conditions, females from the higher grade levels select more androgynous choices than males.

The data on occupational sex-stereotyping derived from this study provide information not only on the mean rating of each occupation in terms of its position on a continuum from feminine to masculine, but also about the variance in perceptions of each occupation. It is important to consider both parameters (mean and standard deviation) in determining the nature of a specific stereotype. Similarly, these two statistics (mean and standard deviation) were presented for each group considered in the analysis.

Implications

Overall, this research suggested that stereotypic attitudes towards occupational sex roles are diminishing. The atmosphere thus seems congenial to behavior and attitudinal change, but it is too early to tell which methods are effective in reducing and eliminating sex-stereotypes of occupations. Somehow, the students must have their epistemic, empathetic, and systemic functional regions expanded to include and internalize androgynous roles for themselves and others.

What is being done in career education at all levels to eliminate stereotyping of sex-roles, including occupations? Are teachers making a conscious effort to remove sex-stereotyping in the school activities? Are the non-sexist inservice programs effectively designed and utilized? What interventions can be established to assist in the preschool years?

It is the hope of the researcher that the time is not far off when the concluding remarks of Margaret Mead (Note 5), from a 1978 commencement address, are widely accepted.

For the first time in human history, we are trying to split occupation from gender. This has never been done before. We are going to try to change the definition of being human, including occupation. The definition of being human will still include whether one is a male or a female, but what one does will not be part of that definition. We have been wasting enormous talents right through history by limiting any activity to gender, and we are going to try not to do it.

Recommendations for Further Research

As this research project was the first to test the effects of career education programs on reducing occupational sex-stereotyping, the fol-

Following recommendations for further research are made to strengthen and expand the data collected in this study:

1. Replication studies using different demographic dimensions.
 - a. Other states with career education in effect for four years
 - b. rural and urban school districts
 - c. sampling of parents of students and preschoolers
2. Similar studies using specific educational strategies for reducing and eliminating occupational sex-stereotyping.
3. Longitudinal research conducted to determine the effects of career education programs since the impetus of non-sexist education.

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ACKNOWLEDGMENTS

Educational research is infeasible without the encouragement and assistance of many persons. I would like to thank especially the following:

William Wolansky, advisor and major professor, for his support and counsel throughout this research and graduate program.

Harold Crawford, for his early assistance in the E.P.D.A. Program.

Ruth Hughes, for explicit support on the purposes of this research.

Trevor Howe, for guidance through the requisite steps of this study.

Richard Warren, for individualized instruction on the complexities of ANOVA and many interpretations of factors.

Robert Gelina, for being my mentor from the genesis to the completion of the study and the many assists in getting it on paper.

Rex Thomas, for the time and innumerable suggestions in helping me change those magnetic bits into useful information.

Fellow educators connected with the K - 14 Articulation Project through which the data was collected.

Morton Steinhart, and others, for extending financial assistance, but more importantly for expressing confidence.

Helen and Virgil Pitstick, for always being a source of love and inspiration who have blended tradition and innovation so very well.

Diana, Mark, Kay, Aquila, Rory, Alyssa, Tatiana, Rurik, & Rodrik for giving me the reason for perseverance and hope for a better way.

The Women who exemplify the best of femininity and feminism.

APPENDIX A: LETTER FROM CANDACE S. GARRETT

INDIANA UNIVERSITY

Institute for Child Study

BY PASS 46

BLOOMINGTON, INDIANA 47401

February 19, 1976

Mr. Rod Pitstick
1414 Linden
Ames, Iowa 50010

Dear Mr. Pitstick:

I have enclosed copies of the occupation attitude instrument for children, the stereotyping report from last year's pilot study, and an APA conference summary of that study. I am in the process of writing the report on the modification of children's attitudes using stories and will send you a copy when it's completed. If you do use the instrument, please send me a copy of your modification and of the resultant report.

Sincerely,

Candace S. Garrett

Candace S. Garrett, Ph.D.
Assistant Professor

CSG/sh
Enclosure

APPENDIX B: OCCUPATIONAL SEX-STEREOTYPING INVENTORY

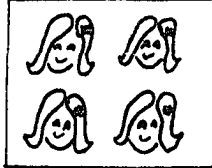
CAREER EDUCATION INVENTORY

OCCUPATIONAL CHOICE

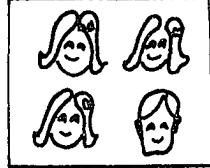
GRADES 3 & 6

This questionnaire consists of a list of occupations and a definition of each. After you read the definition, ask yourself, "Who do you think could do the job?" The drawings below will help you to decide. The possible answers are always the same. Choose from:

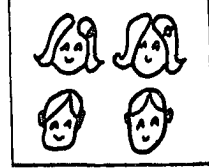
A. Only Women



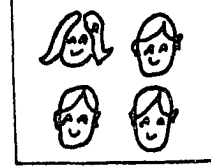
B. More Women than Men



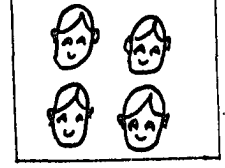
C. Equal Men and Women



D. More Men than Women



E. Only Men



OCCUPATION	<u>"WHO DO YOU THINK COULD DO THE JOB?"</u>				
	ONLY WOMEN	MORE WOMEN THAN MEN	EQUAL MEN AND WOMEN	MORE MEN THAN WOMEN	ONLY MEN
131. Dairy Farmer - feeds and cares for cows and aids in calving. Keeps barn, stalls, and dairy equipment in clean and sanitary condition. Keeps records.	A	B	C	D	E
132. Secretary - answers telephones, greets visitors to the office, types letters, and operates duplicating machines to reproduce copies.	A	B	C	D	E
133. Radio and TV Announcer - announces news, public service reports and interviews public personalities on the air.	A	B	C	D	E
134. Bulldozer Operator - operates tractor with blade on front to level earth and push trees and rocks from land for constructing roads or buildings.	A	B	C	D	E
135. Piano Teacher - instructs students in basic harmony and melody on the piano. Strives to stimulate pupils to practice in order to develop their abilities.	A	B	C	D	E
136. Dentist - examines patients; cleans, fills, extracts and replaces teeth. Diagnoses and treats diseases and injuries of the teeth.	A	B	C	D	E
137. Homemaker - supervises and carries out household management and family living responsibilities; including shopping, meal preparation, and laundry.	A	B	C	D	E
138. Swimming Instructor - teaches swimming and water safety to pupils, usually at summer camps or municipal swimming pools.	A	B	C	D	E
139. Custodian - keeps building in clean and orderly condition and tends furnace to provide heat and hot water. Cleans sidewalks and mows lawns.	A	B	C	D	E
140. Forklift Driver - operates electric powered industrial truck. Positions forks under loaded boxes and lifts them to transport to designated areas.	A	B	C	D	E
141. Grocery Checker - assists customers in their purchases, operates cash register to total the bill, receives payment, gives change, and bags merchandise.	A	B	C	D	E
142. Weather Forecaster - studies charts, maps, and atmospheric data such as barometric pressure, temperature, humidity, wind velocity, and precipitation to predict weather changes.	A	B	C	D	E
143. Minister - conducts religious worship and performs other spiritual functions, such as weddings, baptisms, burials, etc. Delivers sermons and advises.	A	B	C	D	E
144. Fire Fighter - works at putting out fires using water or chemicals. Gives information on how to prevent fires.	A	B	C	D	E
145. Bus Driver - drives bus along prescribed route, maintains order, gives directions to passengers, and collects tickets or money on city routes.	A	B	C	D	E

(over)

OCCUPATION	<u>"WHO DO YOU THINK COULD DO THE JOB?"</u>				
	ONLY WOMEN	MORE WOMEN THAN MEN	EQUAL MEN AND WOMEN	MORE MEN THAN WOMEN	ONLY MEN
146. Veterinarian - qualified to treat diseases and injuries of domestic animals. Vaccinates for prevention of diseases and advises on care.	A	B	C	D	E
147. Computer Operator - controls computer to process data according to the operating instructions.	A	B	C	D	E
148. Newspaper Reporter - collects facts about news-worthy events and writes stories for publication.	A	B	C	D	E
149. Carpenter - constructs, installs and repairs structures of wood and other building materials. Studies blueprints, selects materials and parts for building.	A	B	C	D	E
150. Photographer - takes pictures to sell of people, merchandise, buildings or anything. Arranges lighting, sets camera focus and exposure, develops negatives and prints.	A	B	C	D	E
151. Nurse - performs acts requiring judgment and skill in observation, and care of ill or injured persons.	A	B	C	D	E
152. Restaurant Cook - prepares and cooks food, supervises other kitchen personnel, receives and checks foodstuffs, and selects recipes for the menu.	A	B	C	D	E
153. Waitress/Waiter - serves food to patrons at counters, booths, or tables in restaurants. Presents menus, answers questions and makes suggestions regarding food and service. Writes orders on checks.	A	B	C	D	E
154. Automobile Mechanic - finds and corrects causes of automobile malfunction. May need to take apart, clean, lubricate, and reassemble parts. Gives engine tune-ups so they will run more efficiently.	A	B	C	D	E
155. Sewing Machine Operator - sews clothing or upholstery on heavy-duty machines to sell to others.	A	B	C	D	E
156. Retail Store Manager - Directs the over-all activities of store. Establishes standards and procedures of work. Makes decisions concerning merchandise.	A	B	C	D	E
157. Street Cleaner - sweeps refuse from the streets, gutters, and sidewalks into a moveable container and transports it to a disposal facility.	A	B	C	D	E
158. Funeral Director - attends and directs funeral services. Interviews family for details regarding burial and services.	A	B	C	D	E
159. School Teacher - teaches pupils academic, social, and manipulative skills. Adapts course of study and methods to needs of students.	A	B	C	D	E
160. Airline Pilot - pilots airplanes to transport passengers, mail, or freight. Checks fuel supply, weather, and flight route. Keeps accurate logs of flight. Must be prepared for emergencies.	A	B	C	D	E

APPENDIX C: SEX-STEREOTYPING OF OCCUPATIONS (RANKING)

Sex-stereotyping of Occupations

Occupation	Mean	SD	SE
Homemaker	1.908	0.862	0.021
Nurse	1.926	0.794	0.019
Secretary	1.951	0.730	0.018
Sewing machine operator	2.092	0.875	0.022
Piano teacher	2.444	0.729	0.018
Waitress/waiter	2.602	0.730	0.018
Grocery checker	2.717	0.645	0.016
School teacher	2.862	0.534	0.013
Swimming instructor	2.954	0.442	0.011
Restaurant cook	2.960	0.599	0.015
Photographer	3.025	0.546	0.013
Computer operator	3.038	0.626	0.015
Newspaper reporter	3.083	0.523	0.013
Weather forecaster	3.193	0.548	0.013
Bus driver	3.243	0.562	0.014
Veterinarian	3.282	0.633	0.016
Radio & TV announcer	3.292	0.581	0.014
Retail store manager	3.317	0.690	0.017
Dentist	3.487	0.745	0.018
Funeral director	3.769	0.816	0.020
Custodian	3.841	0.781	0.019
Dairy farmer	3.853	0.742	0.018
Airline pilot	3.974	0.839	0.021
Street cleaner	3.993	0.812	0.020
Minister	4.059	0.848	0.021
Automobile mechanic	4.160	0.814	0.020
Carpenter	4.185	0.695	0.017
Fire fighter	4.249	0.748	0.018
Fork lift driver	4.261	0.750	0.018
Bulldozer operator	4.394	0.708	0.017