DOCUMENT RESUME

ED 198 297 CE 027 948

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TITLE Improving Women's Occupational Potential. A Review of the Literature. Summary Staff Report.
INSTITUTION Commission on Civil Rights, Washington, D.C.
PUB DATE Mar 78
NOTE 90p.; For a related document see ED 177 369. Some pages will not reproduce well due to broken print.

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Career Education; *Change Strategies; Educational Attainment; Educational Practices; Elementary Education; Employment; Employment Level; Employment Patterns; *Employment Potential; Family Influence; *Females; Literature Reviews; Mass Media; Motivation; Occupational Aspiration; *Parent Influence; Peer Influence; Preschool Education; Secondary Education; Self Concept; *Sex Differences; Sex Stereotypes; Skills; Social Influences; Socioeconomic Status; *Teacher Influence; Vocational Education; Work Attitudes

ABSTRACT

A review of literature on improving women's occupational potential was conducted. Most existing theories of occupational development focus on males. However, the beginnings of several theories of women's occupational development have recently been proposed. These are (1) structural theories, revolving around personality traits and ability patterns and (2) developmental theories, emphasizing the stages in the decision-making process involved in occupational choice. Several factors limit women's occupational potential. These include self-concept and the sense of competence; such motivational aspects of occupational development as aspirations, expectations, and attitudes; and the acquisition of educational means to occupational attainment (the acquisition of knowledge, training, and skills through career education, vocational education, and the practical arts). Modeling sex-typed behaviors, sex-stereotyped expectations and attitudes, and different behavioral interaction patterns with male and female students are among ways in which teachers contribute to differences in occupational development. Parental attitudes, expectations, and sex role socialization practices and peer and visual media influences also contribute to sex differences in occupational development. Sex role stereotypes and sex-typed occupational aspirations are modifiable. Therefore, educators must develop and implement effective nonsexist interventions at the elementary and secondary level. (A bibliography containing 267 items is included.) (MN)

IMPROVING WOMENS' OCCUPATIONAL POTENTIAL

A REVIEW OF THE LITERATURE

SUMMARY STAFF REPORT

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Office of Research

U. S. Commission on Civil Rights

March 1978

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IMPROVING WOMENS' OCCUPATIONAL POTENTIAL

A REVIEW OF THE LITERATURE

I. Theoretical Contributions to Understanding Women's Occupational Potential

While there is a substantial body of literature on occupational development, relatively little of it is directly relevant to females. At least four major theories of occupational development have been proposed and scores of empirical studies have been conducted to test these theories. By and large, the theories and the tests of the theories are focussed on male occupational development. Female occupational development is either ignored in this literature, or is treated as a "trivial corollary to men's career development".[1]

Recently there has been an upsurge in interest in women's occupational development. It is now recognized that women's occupational development is unique in many respects, and cannot be treated merely as a corollary of mens'. The bare beginnings of several theories have been proposed, and a number of studies have been conducted. While no theory is adequate at this time to fully describe women's occupational development, some valid generalizations can be extracted from this literature.

The theories can be roughly divided into two broad categories: the structural and the developmental. Structural theories analyze occupations within a conceptual framework, and look to see how various characteristics of individuals fit into this framework. Thus for example, Holland's theory organizes occupations into six categories,

and points to the personality traits and ability patterns of individuals who enter those occupations.[2]

Developmental theories emphasize the stages in the decision-making processes involved in occupational choice. They focus on aspects of individuals' experience which shape particular occupational orientations and lead to particular occupational choices. For example, Ginzberg (1951) conceives of occupational choice as a developmental phenomenon and identifies three stages to characterize individuals' occupational development.[3] While Holland's theory recognizes the importance of accounting for the development of different personality orientations, it does not represent a systematic attempt to do so.

Clearly, these two views are not mutually exclusive. While they differ in choice of emphasis, they are completely compatible and in fact, can be viewed as complementary to one another.

The structural view is useful because it provides a conceptual framework for viewing the occupational world, and in particular, how the sexes are distributed across occupations. The developmental view is useful because it suggests that occupational development should be conceived of as a series of decision-making processes, with different sorts of decisions being made at successive stages of development. It points to the need for identifying the kinds of decisions girls are making at each stage in their occupational development which prevent them from actualizing their full occupational potential. In addition, the developmental view points to the shaping influence of various agents and experiences at successive stages of development.

The view that sex role and occupational role are inextricably intertwined applies equally well in both the structural and developmental perspectives. Thus, sex roles underlie the distribution of individuals across the spectrum of occupations and, to a large extent, determine the direction of individuals' occupational development.

II. Sex Differences in Aspects of Occupational Development

There is a growing body of literature on sex differences in occupational development. The literature can be broken down into a number of areas, each of which focusses on a different component of "occupational potential".

1. Self-Concept and Sense of Competence

Several of the major theories of occupational development have pointed to the self-concept as a key determinant of individuals' occupational choice and attainment. Super's (1971) theory, perhaps the leading theory of occupational choice, is based on the assumption that occupational choice is essentially a process of self-concept implementation.[4] According to the theory, the self-concept is important because it channels occupational preferences, helps determine the kind of training for occupations undertaken, and ultimately, determines the degree of satisfaction experienced in one's chosen occupation.

Studies indicate consistent and significant sex differences in self-concept, regardless of the dimension of self-concept examined (Rosenberg and Simmons, 1975;[5] Richardson, 1975;[6] Asche, 1974[7]), the measurement instrument used to assess it (Oppenheimer, 1966;[8] Rosenkrantz et al., 1968[9]), or the characteristics (e.g., age, SES) of

the subjects in the sample (Rosenberg & Simmons, 1975;[10] Rosenkrantz et al., 1968;[11] Baruch, 1974).[12] The greatest sex difference appears to be along the dimension of self-consciousness, which also manifests an increasing disparity during the adolescent period (Rosenberg & Simmons, 1975).[13]

Although the evidence on sex differences in self-esteem has not been as consistent (Rosenberg & Simmons, 1975;[14] Korman, 1966;[15] Oppenheimer, 1966),[16] it is an important variable to consider inasmuch as low self-esteem clearly exerts a restrictive impact on some women's occupational aspirations and expectations.

While there is not a tremendous amount of research evidence, that which does exist suggests large and consistent sex differences in perceptions about characteristics and abilities (Broverman and others, 1972;[17] Baruch, 1974).[18] Males see themselves in terms of "competency" related attributes, while females see themselves as being more "expressive." Males rate themselves high on achievement oriented qualities, females rate themselves high on artistic and socially oriented characteristics.

2. Motivational Aspects of Occupational Development: Aspirations, Expectations, and Attitudes

For purposes of this study, motivation is defined as "The desire to move in a certain direction and with a particular purpose."[19] It is being used here in a general way to refer to factors which are psychological in nature, internally generated, and which have the effect of restricting women's occupational potential. It is assumed that each of these factors contributes to the lowering of girls' motivation to aspire to the full

range of occupations, and in so doing, places limits on their later occupational attainment.

a. Aspirations

A review of the literature on occupational aspirations reveals that while there are many ways of conceptualizing it, there has been no systematic attempt to do so (Laws, 1976).[20] Thus, studies may refer to occupational "preferences", "choice", and "interests" just about interchangeably (e.g., Powell & Bloom, 1962;[21] Looft, 1971;[22] Nelson, 1963).[23] A whole other set of studies looks not at women's preferences or choices among occupations, but at the factors influencing and the characteristics associated with the decision to enter any occupation at all. Most of this literature has been concerned with the "home-career" conflict and its resolution (e.g., Farmer & Bohn, 1970;[24] Harmon, 1970;[25] Rand & Miller, 1972).[26] Still a third group of studies attempts to identify background and personality characteristics of women entering nontraditional or "role-innovative" occupations (e.g., Tangri, 1970;[27] Almquist, 1974).[28]

Studies falling in the first category, i.e., preferences among occupations, reveal systematic sex differences from the earliest ages through adulthood. The studies vary considerably in methodology, e.g., open-ended questionnaires, multiple-choice questionnaires, rank-ordering of occupations, personal interviews, etc. have all been employed. Regardless of methodology, however, the studies show that girls restrict their occupational preferences to a much narrower range than boys.

For example, Looft (1971)[29] asked first and second grade boys and girls, "What do you want to be when you grow up?". In response to this

question, boys nominated 18 different categories, while girls only named eight. In fact, more than three quarters of the girls named either nurse or teacher as their choice, while boys named a wide range of occupations, including doctor, dentist, scientist, pilot, astronaut, policeman and football player. Interestingly, several girls responded that they would be mothers, whereas not one boy said he would be a father. These results were corroborated in a number of recent studies (e.g., Siegel, 1973;[30] Franken, 1976).[31]

Not only is the range of occupations restricted in number, but girls at all ages between 9 and 17 choose lower ranking occupations than boys of the same age (Barnett, 1971).[32]

Sex differences have been analyzed not only in terms of the diversity and rank (prestige) of occupational choices, but also in terms of the central characteristics of the occupations themselves. For example, Kirchner and Vondracek (1973)[33] found that girls as young as 3 years old already exhibit preferences for jobs involving aesthetic interests, as well as personal service fields such as teaching. In contrast, boys prefer jobs involving travel, physical activity, and giving orders.

Studies based on Holland's theory of vocational choice demonstrate the same sort of divergence in the occupational aspirations of boys and girls from the fifth grade through adulthood. By the fifth grade, girls are already aspiring to "social" occupations most (e.g., teacher, social worker) and "realistic" occupations least (e.g., skilled trades).[34] The same sort of pattern characterizes college student and adult preferences, with women overwhelmingly choosing "social", "artistic", and "conventional"

occupations while men choose "investigative", realistic", and "enterprising" occupations.[35]

Unfortunately, as with occupational aspirations, girls also exhibit significantly lower educational and academic aspirations than do boys (Wiggins, 1973;[36] Pengelly, 1974).[37] Pengelly's research suggests that the educational aspirations of girls begin to decline relative to those of boys as they move into later adolescence, i.e., late high school.

As Laws pointed out, these sex differences should be construed as differences in occupational "intention".[38] They signify the application of consensually agreed upon and learned principles about occupational sex-segregation at the level of the individual.

b. Expectations

It is worthwhile to distinguish between occupational aspirations and occupational expectations insofar as each of these may contribute to the maximization or the inhibition of womens' occupational potential. There is empirical evidence to demonstrate that girls' preferences for occupations are significantly different from their occupational expectations (e.g., Powell & Bloom, 1962)[39]; usually this is in the direction of girls' expectations being lower than their aspirations. Thus, girls may be forced to lower their aspirations as a result of their diminishing expectations.

Conceptually, expectations are governed primarily by the individual's (subjective) assessment of probabilities, and may take into account such realistic considerations as labor market discrimination, geographical mobility/immobility, financial factors, etc. In contrast, aspirations

represent the individuals' "pure" interests, desire, or preferences, without taking these factors into account. Because many studies have failed to make this distinction explicit, the literature is often confusing and occasionally misleading. A few studies have made this distinction, and their results are discussed below.

Looft's (1971) study consisted of two parts.[40] In the first part, he asked a group of 6 - 8 year old children "What do you want to be when you grow up?" The children's responses presumably reflected their aspirations. In the second part, he asked "Now, what do you think you <u>really</u> will do when you grow up? What do you think you really will be when <u>you</u> are an adult?" Looft noted: "this question may have prompted the children to perceive a difference between what they <u>wanted</u> to be and what they realistically <u>expected</u> to be in adulthood."[41]

Interestingly, Looft found that a significantly greater proportion of the boys than the girls changed their initial response. While Looft attributed this difference to earlier "foreclosure" in vocational aspirations of girls in contrast to boys, an alternative explanation is that the girls simply had fewer alternatives to choose from; hence they were more likely to stick to their initial choice.

Looft provided a poignant example of how the process might work for girls. In response to the question about expectations, a girl who initially expressed a desire to be a doctor commented; "I'll probably have to be something else -- maybe a store lady".[42]

Rosenberg and Simmons (1975) found striking sex differences in occupational expectations beginning in early adolescence.[43] Girls were reported to be much more likely than boys to expect to be no better than average occupationally.

c. Attitudes

A considerable amount of attention has been devoted to examining some of the attitudinal variables that may act as barriers to maximization of women's occupational potential. By attitude is meant "the sum of total of one's inclinations and feelings, prejudices or biases, preconceived notions, ideas, fears, threats, and convictions about any specific topic".[44]

A review of the literature by Virginia O'Leary discussed some of the major attitudinal barriers which may inhibit the expression of achievement-directed behavior in women.[45] O'Leary distinguished between factors internal and external to the woman herself. External factors include societal sex role stereotypes, males' attitudes towards women, and others' attitudes towards competency in women. Internal factors include fear of failure, low self-esteem, role conflict, fear of success, and the perceived consequences and incentives for engaging in achievement-related behaviors. Clearly, both sets of attitudes must be modified for the fulfillment of women's potential. However, because this study focusses on modifying women's attitudes themselves, this review is limited to those attitudes falling in the "internal" category.

Aspects of the self-concept which may inhibit women from fulfilling their potential have already been reviewed. While both fear of failure and fear of success may contribute to some women's apparent reluctance

to aspire to high level or nontraditional occupations, it is not clear that women, in general, manifest these fears to a greater extent than do men.

The theoretical construct "fear of success" has received a tremendous amount of attention, both in the research literature and in the popular media, since it was first proposed by Matina Horner in 1968.[46] Horner hypothesized that women have a motive to avoid success which prevents them from achieving in a traditionally masculine context. The rationale for the theory stems from the observation that achievement is by its very nature out of role for women and can have negative consequences for them. For example, success may be linked in women's minds with fear of social rejection, and doubts about their femininity or even normality.

The original research on which the theory was based indicated that fear of success was much more prevalent among women than men (62% compared with 10%, respectively).[47] Horner also found that women who were high in fear of success performed better alone than in competition, and women low in fear of success performed better in competition than alone.

A number of more recent studies have cast doubt on Horner's findings and collectively raise questions as to the validity of the fear of success construct (Tresemer, 1976).[48] Moreover, the methodology that has typically been used to test the theory has met with considerable criticism.[49]

"Role conflict" is another well recognized attitudinal barrier to maximization of occupational potential in women (e.g., O'Leary, 1976).[50] This discussion focuses on role conflict in its most general sense, and refers to all of the attitudes that women hold about the intrinsic role-incompatibilities they are faced with in our society. Three categories of such attitudes can be distinguished, corresponding to three basic role incompatibilities confronting women today: attitudes about the dual role of married women who work, attitudes towards the social, economic, and political equality of women, and attitudes about existing sex-role divisions in occupations and activities.

A number of recent studies have examined the development of attitudes about the dual role of women as homemaker and worker. For example, Entwisle and Greenberger (1970) found a marked difference in opinion between boys and girls about women's roles, with boys consistently holding more traditional opinions.[51]

A few studies have examined the development of attitudes towards the social, economic, and political equality of women. Greenberg (1973) administered a questionnaire to a sample of 400 students in each of grades 4, 6, 8 and 10 to examine their attitudes toward increased social, economic and political participation by women.[52] Students were asked to respond yes or no to a series of questions of the type: "Do you think that women in all countries of the world should have equal rights to men?"

Greenberg found that in all age and social class groups tested, females had consistently and significantly (at the $p<.01$ level) more

egalitarian scores than males on the questionnaire. She also found that upper grade students (after grade 4 in males and grade 6 in females) were more likely to give egalitarian responses than lower grade students.

A recent study by Hershey and Sullivan (1977) suggests that attitudes about women's roles are part of a more general liberal-conservative dimension of political ideology.[53] Findings indicated that those who score more liberal or flexible on several measures of sex-role attitudes are also very likely to hold liberal political attitudes.

As noted in O'Leary (1974), considerable research documents the existence of role conflict among women who are engaged in traditionally masculine occupations.[54] Among girls and young women, this role conflict is reflected in their attitudes about sex-role divisions in occupations and activities.

For example, a recent study by Shepard and Hess (1975) examined the development of attitudes toward sex role division in adult occupations and activities.[55] The results indicated that overall liberality increased from kindergarten through eighth grade to college and then decreased in the adult sample. By the eighth grade, females were significantly more liberal than males, and this difference persisted into adulthood. Not surprisingly, the college students were the most liberal group.

Shepard and Hess concluded that while there has been a liberalization of attitudes among both sexes toward women entering prestigious occupations, and there has been some change in attitudes towards women entering traditionally male occupations such as truck driver, there has been little

or no change in attitudes toward sharing of traditionally female roles. They noted that "Home care items are still seen as drudge work".[56] Males' attitudes towards the sharing of household tasks seem to be particularly resistant to change.

In her Ed.D. dissertation, Lois Brooks investigated "The sex-role stereotyping of occupational perceptions by sixth grade students" (1973).[57] The sample consisted of 258 girls and 240 boys from ten Detroit schools of varying socio-economic and racial compositions.

The results revealed a number of significant relationships. First, while the girls and boys had similar perceptions about the entrance of men and women into male-dominated occupations, they perceived differently concerning the entrance of men and women into female-dominated occupations. That is, boys perceived that men can enter fewer female-dominated occupations than girls perceived. However, all students perceived that a greater percentage of men can enter female-dominated occupations than women can enter male-dominated occupations.

While a small percentage of girls indicated a desire to enter male-dominated occupations, no boys indicated a desire to enter female-dominated occupations. A relationship was found between girls holding less sex-role stereotyped occupational perceptions and (1) plans to enter a male-dominated occupation, (2) perceptions of similar criteria for success for men and women, (3) going places alone with father, (4) being treated differently than her brothers and sisters by father, (5) closer to being first born; and (6) having fewer siblings.

Interestingly, while there was a relationship between high self-esteem and the absence of sex role stereotyped occupational perceptions for girls, no such relationship was found for boys. Finally, a relationship was found between girls with mothers employed in male-dominated occupations and aspirations to enter a male-dominated career.

For her Ed. D. dissertation, Marilyn Meyer studied "Patterns of perceptions and attitudes toward traditionally masculine and feminine occupations through childhood and adolescence" (1970).[58] A total of 132 boys and girls from grades 3, 7, and 11 and from both high and low socio-economic groups were represented.

A series of pairs of pictures was presented to the subjects depicting a male and female worker engaged in the identical vocational activity ("paired picture technique"). For each pair of pictures, subjects were asked to indicate which picture they liked the best, which of the people likes his or her job best, and which of the people made the best choice of a job. These three questions were designed to measure "vocational identification", "vocational interest", and "vocational appropriateness", respectively. The occupations were equally divided among traditionally feminine, traditionally masculine, and traditionally neutral occupations.

The major overall finding was that both boys and girls had strongly sex-stereotyped views about occupations. However, the way in which this manifested itself varied considerably as a function of developmental level. Both boys and girls in the third grade responded on the basis of the sex of the character depicted rather

than on the basis of the work role or activity itself. The boys in the third grade were particularly likely to respond solely on the basis of sex — they viewed the men as best liked in all occupations, the men as liking all occupations best, and the men as having made the best occupational choices, regardless of the sex-linkage of these occupations. On the basis of this finding, Meyer concluded that "It seems clear that boys and girls in grade three identify with male and female workers on the basis of their sex-rather than on the basis of their work role."[59]

By the seventh grade, subjects were no longer tieing their interest in an occupation to the sex of the individual depicted in the occupation, but rather to the "vocational appropriateness" of the role for the sex depicted. The eleventh grade students were even more likely to moderate their entire response pattern by the appropriateness of the worker for the particular sex-linked occupation.

3. Acquisition of Educational Means to Occupational Attainment: Knowledge, Training, and Skills

a. Career Education, Vocational Education, and Practical Arts

There are numerous ways to conceptualize the relationship between education and occupations, and proponents can be found to support any of a number of such conceptualizations. The two most widely recognized conceptualizations are "career education" and "vocational education". Numerous definitions of these terms have also been proposed representing the spectrum of opinions and assumptions about the "appropriate" or "best" role of schools in preparing youth for their future occupations.

Dr. Charles Buzzell, Acting Deputy Director for Occupational and Adult Education, U. S. Office of Education, describes the relationship between vocational education and career education as "symbiotic", implying that while the two are closely associated, each does have unique aspects as well. Dr. Buzzell defined career education as

> ". . . a philosophy that encompasses the totality of educational experiences through which one learns about and prepares for work. Career education has many elements. Some are concerned with the world of work, how one finds out about jobs, and how one assesses personal competencies; and, yes, career education does encompass actual skill preparation."[60]

Both the Senate and the Congress have recently expressed support for career education, both in principle and in terms of financial support. The Senate report written to accompany Senator Claiborn Pell's Education Amendments of 1976 (S. 2657) stated that preparation for the working world should be a basic part of any education program and that career education is an effective way to achieve that goal.[61] The Labor and Public Welfare Committee of the U. S. Congress stated that "the Congress finds and declares that preparation for careers should be a major purpose of education at every level and in every type of educational institution, and that it is in the Federal interest for every person to be exposed to the widest varieties of career options in the course of that person's education."[62]

According to the Senate report, career education programs have shown they are capable of narrowing the gap between school and work.

It urged that efforts concentrate on the school-to-work problem itself and back away from trying to resolve the various and often conflicting definitions of career education.

The Pell bill authorized $25 million for fiscal 1978 rising to $75 million by fiscal 1982 to fund development of elementary and secondary school career education and career development information needs; support for state and local agencies to develop their own career education strategies, an assessment of existing career education programs, demonstration and replication of the best programs; and training and retraining of personnel.[63]

"Vocational education" is defined as a more narrow concept involving "skill development",[64] and therefore is but one element in the more general concept of "career education". In particular, vocational education has been defined as the "preparation at the high school and one-to-two year post-secondary levels for careers in many semi-professional fields, some traditional, some as new as the technologies they serve".[65]

One of the central features of career education is that it involves the process of "infusion" into the total educational experience. By this is meant that career education is not limited to a discrete course or facility or stage of development. Rather, career education is infused throughout the entire educational system — in the disciplines of English, mathematics, civics, counseling, and so forth. . . . . "it involves a <u>restructuring</u> of the basic school subjects around the theme

of career development."[66] In contrast, the element of skill development or vocational education is more clearly visible. It occurs in particular facilities, in the shops, and in the laboratories.

Two of the most significant aspects of career education are its emphasis on reaching children at an early age, and its delineation of the different types of career education which are appropriate to different stages of development. In general, the elementary school years are viewed as a time during which students should gain career awareness by becoming aware of the wide range of career options, developing self-awareness, and developing favorable attitudes about the psychological and social significance of work.[67]

Junior high school is generally seen as a time of career exploration and orientation during which students should "explore specific clusters of occupations through hands-on experiences and field observations, as well as through classroom instruction". It is also a time when they "begin to develop career decision making skills".[68]

Senior high school students are in the stage of career preparation where they actually prepare for job entry in a selected career area through classroom, laboratory, and on-the-job activities, and also prepare for further education. From the career education perspective, high school academic subjects become more relevant because the student is helped to perceive their relationship to future career goals. Ideally, all exiting high school students would be assisted by the school in securing placement in either a job, a post-secondary occupational program or in a college or university. In contrast to the present situation, college students would enroll in higher education with a purpose and a clear sense of

direction focused on a career goal which they have established for themselves.[69]

Because there are more than 23,000 active job titles in the United States today,[70] many career education programs utilize a "cluster" framework in orienting students to careers. Instead of exposing students to individual occupations, they analyze the world of work through career clusters, i.e., varieties of occupations that have certain commonalities.

Schools using the "cluster" concept might have students analyze each cluster of occupations, focusing on the societal needs they fulfill, varieties of occupations within the cluster, and the opportunities available in the various classes of occupations.[71] The seventh grade is viewed as a particularly important stage for implementing the "cluster" concept, because it is at this time that priority is placed on career "exploration".[72]

Interestingly, the only area of the curriculum in which the principles of career education have been widely implemented is in seventh grade practical arts. Although it is unintentional, the "cluster" concept is implemented in many of these courses by focusing on only those occupations which relate to the seventh grade practical arts curriculum, e.g., industrial arts and home economics related occupations. The industrial arts (i.e., shop) and home economics (i.e., cooking and sewing) courses have traditionally had <u>exploration</u> as one of their important goals.

It is important to note that seventh grade practical arts is not considered a part of vocational education. The reason is that practical arts is designed to provide knowledge and skill of a general nature needed by all individuals rather than the specific competencies required for a particular vocation. While the present vocational education system is an umbrella for a large variety of programs, most seek to equip students with a marketable skill or a basis for further education or training. The common denominator linking all the programs included under the rubric of "vocational education" is their eligibility for federal support through the various vocational education acts and amendments.[73]

James Rhodes notes: "For some unfathomable reason, the public education system has accepted the concept of industrial arts as an exploratory function and as a part of the shcool curriculum, but has ignored the need for exploration in relation to other broad areas of work.:[74] The exploratory function is seen as important because it provides students with experiences "of a tryout nature to enable them to evaluate their interests and abilities in that area".[75]

A study by the American Institutes for Research (AIR, 1974) found that only about three percent of the nation's students were in districts with career education programs in 1974-1975.[76] The study found formal career education policies in fewer than a third of the 860 school districts. While the vast majority of the districts responding endorsed career education, sixty percent also responded that their activities were "limited" at the present time.

Despite the fact that much of the career education concept focuses on early education (i.e., elementary and junior high), the AIR researchers found that most career education activities were still being carried out in the high schools and by counselors.

With regard to the types of career education activities engaged in, the study found that informational activities were prevalent among young students, with equal amounts of information and skill learning among older students. Approximately 21% of the elementary school students participated in activities to develop the self-concept, including interests, attitudes and values with respect to work. At the junior high school level, provision of career-relevant skills was emphasized, "especially decision-making as it concerns career plans and occupational choices, with about 31% of secondary students nationwide participating."[77]

The study found that district size was strongly associated with career education implementation; school districts with larger enrollments had far more career education activities than smaller districts. Large districts cited endorsement of parents and Federal assistance as contributing to success.[78]

The researchers concluded by pointing to a number of career education activities which should receive greater emphasis. One is the use of work-related resources to teach basic skills, particularly at the secondary level. Another is the teaching of "decision-making skills to improve career planning". A third is the use of work experience to help in choosing occupations. A fourth involves the coordination of career

education experiences across grades. They recommend the establishment of advisory committees for career education to assist in the implementation of these objectives. Finally, the researchers pointed to the importance of evaluation, which needs to be more objective and systematic.[79]

The need for an increased emphasis on career education activities and widespread career education implementation is buttressed by studies which indicate the failure of vocational education training to provide adequate jobs, particularly for minorities and women (Wilms, 1974).[80]

b. Knowledge About Occupations

While all types of knowledge contribute to occupational potential, this review focusses on knowledge about occupations. Occupational knowledge is important because it may be used as the basis for considering or rejecting occupations, and may provide incentives or disincentives for acquisition of related training or skills. Accurate and adequate knowledge about occupations can thus contribute to career development based on factual knowledge about a wide variety of occupations.

Wise, Charner, and Randour (1976) designed a conceptual framework to describe aspects of career awareness.[81] According to this view, career awareness consists of four elements which "all participate in a dynamic and interactive way in the formation of individual career awareness and career choice".[82] The four elements are knowledge, preferances, values, and self-concept.

In an earlier paper Wise et. al. (1975) defined "knowledge" as: "factual information about the skills and educational requirements of

an occupation, the nature of the occupation in terms of its processes and products, its potential for access, advancements, and benefits".[83] They noted that knowledge about the dimensions of work affects "(a) preference for a work activity or return, (b) the value placed on a particular routine or return, and (c) one's self-concept with regard to a specific work activity".[84] In this way it can be seen that occupational knowledge is both distinct from and related to the other aspects of occupational potential which have already been reviewed (e.g., self-concept, aspirations).

Researchers Aimee Dorr Leifer and Gerald Lesser recently reviewed the literature on "The development of career awareness in young children" (1976).[85] They conceptualized "career awareness" as consisting of several different but interacting clusters of information and attitudes. Three clusters of information about work were identified: information about occupational behavior; information about antecedents and social consequences; and information about the self.

Leifer and Lesser's review indicated that very little is known about the career information of children between the ages of four and twelve in any of the three information clusters.[86] Some work was found on children's knowledge of skills required by various occupations, and on children's understanding of the status hierarchy of occupations in the United States. Generally, information on children's knowledge of the existence of different occupations has been based on studies of aspirations rather than on occupational knowledge per se.

The limited evidence which does exist suggests that young children know about relatively few of the many potential occupations available to them. Despite this limited knowledge, children do understand the status hierarchy of the occupations they know about and, as we have already seen, largely accept the traditional assignment of men and women into their structure.

For example, a study by Sylvia Goodson (1970) interviewed 180 children in grades 3 through 8 with regard to their occupational interests, knowledge, and attitudes. In her conclusion, Goodson noted that "many students revealed ignorance or misinformation about the work people perform".[87]

Barbara Fulton did her Ph.D. dissertation on the vocational development of children.[88] The study identified occupations about which children are aware, what they know about these occupations, and at what age level they acquire this knowledge.

The results indicated that children begin learning about their parents' occupations during their preschool years and this knowledge increases with grade level, and that children progressively are able to list more occupations from preschool through grade five. In addition to being able to name more occupations, children improve with increased grade level in their ability to: (a) sort occupational pictures on the basis of similarities and differences; (b) respond to pictures with appropriate job titles; (c) identify occupational activities; (d) estimate the economic status of workers; and (e) associate the sex of workers in various occupations. Other results showed

that none of the children had yet acquired accurate knowledge about job training. The study showed that children begin to eliminate occupations during the preschool years and that close agreement exists between adults and childrens' rank ordering of occupations. Finally, Fulton's study indicated that children from three quite different communities were much more similar than different in vocational development through the fifth grade.

Researchers Marvin Powell and Viola Bloom (1962) reviewed the evidence on the development of the reasons for vocational choices of adolescents through the high school years.[89] Among their major conclusions, they pointed to the general lack of knowledge of vocational fields in both males and females. "Youth are frustrated in the intelligent selection of a vocation because of the lack of knowledge of vocational fields. Conflicts arise when the individual is not aware of the breadth of opportunities in each vocational field and thus the youth becomes inhibited in entering an occupation of his (sic) choice. There is definite need for more vocational orientation in junior and senior high school."

Richard Nelson investigated occupational knowledge and interests among elementary and secondary school students in 1963.[90] Noting that "accurate occupational information is essential to effective occupational choice",[91] Nelson sought to provide an objective description of some elements of occupational knowledge.

Nelson found that sex was the most important factor in determining reactions to the various occupations. Boys exceeded girls in numbers of

positive reactions for all occupations in which significant sex differences were found, except for the four occupations depicting female workers. Both sexes frequently mentioned sex-inappropriateness as a reason for not choosing occupations. This factor was mentioned as a reason a total of 120 times.

This study is important because it demonstrates the beginnings of the occupational elimination process during the early elementary school years. It leads to the conclusion that "relatively irreversible and damaging occupational concepts may be internalized because little effort is made to help children develop an early and objective understanding of the world of work".[92]

The evidence reviewed in this section demonstrates that students of both sexes and at all ages are seriously lacking in occupational knowledge. They not only lack knowledge about virtually every aspect of the occupational world, but they lack information about the specific occupations they are planning to enter. While many reasons could be postulated to account for this dearth of information, schools seem to be particularly remiss in teaching students about occupations.

c. Sex-typed Education for Sex-typed Occupations

The differential education of males and females can be traced throughout our history, and is firmly rooted in traditional views of the female role. Where it has been given to females, vocational education has focused on occupations defined as "female", such as dressmaking, millinery and secretarial skills. Vocational education courses have centered as much as possible on home economics or

domestic science. Skills that could offer returns in the job market as well as at home were considered doubly valuable; hence cooking and sewing became predominant. In any case, vocational education has invariably been subordinated to what was considered women's larger role as homemakers.[93]

Women's academic education has also been limited to the female stereotyped courses of study. Historically, women who went on to college studied in fields such as elementary education, home economics, and nursing.

Women's education has also failed to provide them with the knowledge and skills in certain critical areas, most notably mathmatics and science, which would allow them to pursue a wide range of nontraditional occupations.

The most recent evidence available indicates that women are still largely enrolled in the vocational education programs that conform to traditional sex stereotypes. For example, in 1972, (the last year in which the Office of Education collected vocational education enrollment data by sex) almost 50% of all female vocational education enrollments were in non-gainful home economics, and 30% were in office occupations -- mostly typing and filing courses.[94] At the same time, less than 5% of the female enrollments were in the trade and industrial programs which lead to higher paying jobs, and which accounted for almost 50% of the male enrollments.[95] Analagous sex stereotyped enrollment patterns are found in post-secondary schools and in four year colleges.[96]

These figures are even more dramatic when one considers that, contrary to popular belief, there are actually more female students enrolled in vocational education programs than males (Lewis and Kaltreider, 1976).[97]

Several studies attempted to determine if there have been any changes or improvements in the vocational education of women in recent years. Peter Holmes, the Director of the Office for Civil Rights, DHEW, examined the "Enforcement of Civil Rights Statutes in Area Vocational-Technical Schools" in 1974.[98] While noting that "much has happened both in vocational education and in civil rights since the early days,"[99] Holmes pointed to widespread discrimination on the basis of sex. His comments were based on preliminary findings from a sample of 1,500 vocational schools. Out of this sample, OCR found that many vocational schools continue to separate programs and courses by sex, and a number of schools accept only students of one sex.

A group of Pennsylvania State University researchers attempted to locate ten "pacesetter" secondary schools in 1974-1975, in order to develop recommendations for increasing female enrollments in non-traditional areas.[100] They were looking for vocational high schools which were actively encouraging women to train for occupations in traditionally male-dominated fields. After scouring the country, the researchers could not find any "pacesetter" schools which had specific procedures or programs designed to encourage females to enter traditionally male occupations. Instead, they had to settle for eleven vocational and comprehensive high schools that had enrolled at least five females in

one or more nontraditional courses. These schools had no special programs, and the females were not enrolled in "hard core" male programs such as construction, metalworking, or auto mechanics. Instead, the females were found in such "gray" areas as vocational agriculture, printing, industrial chemistry, or television arts.

In terms of academic education, there are no overall sex differences in amount of education received. Both men and women have, on the average, slightly more than a high school education. There are considerable differences, however, in the distributions of the sexes across educational levels. Men tend to be found at both the low (high school dropout) and the high (master's or doctoral degree) ends of the continuum, while women tend to be disproportionately concentrated in the middle levels of education, i.e., high school and college levels.[101]

A recent study by the National Center for Education Statistics (NCES) examined degrees earned over the ten year period from 1964-1965 to 1974-1975.[102] This study suggests that although they are still far behind men in their acquisition of education, women are receiving an increasing percentage of bachelor's and higher degrees. However, while more women earned doctor's degrees than ever before, very few earned them in nontraditional fields of study.

A considerable and increasing amount of evidence points to mathematics as a "critical filter" which either allows or prevents women from entering nontraditional occupations. Helen Astin (1968) found that for girls only, mathematical aptitude and mechanical information (both abilities in which boys excel) in the ninth grade differentiated

between girls who chose occupations in the sciences and the professions and girls choosing more traditional occupations in the twelfth grade.[103]

Sociologist Lucy Sells (1973) showed that girls' inadequate high school training in mathematics can have dramatic consequences for their future lives.[104] She demonstrated that in a random sample of Berkeley Freshmen, 57% of the males had taken four years of high school mathematics, but only 8% of the females had done so. This four year mathematics sequence was required for majoring in every field at the University except the traditionally female. A second finding of Sells was equally striking. She found that among students earning their B.A.'s in the 21 largest schools of letter and science there was a strong and statistically significant relationship between having a one-year college math requirement in the curriculum and having less than one-third of the degrees in the department earned by women.

One inevitable corollary of women's inadequate high school training is their disproportionately low representation in college math courses. Ernest (1975) reported that while women constituted a majority in the 1971 freshman class at Berkeley, they comprised only one-third of the students in the basic mathematics courses.[105] Recent evidence indicates that women are only vaguely aware of the importance of math to non-traditional occupations (Kane, 1976).[106]

In addition, several researchers have suggested that male's greater acquisition of mathematical training does not reflect a stronger liking for it, but rather a more acute awareness of the importance of mathematics to their future occupational attainment (Ernest, 1975,[107] Osen, 1971[108]).

A recent study conducted at Stanford provided empirical support for this view (Dornbusch, 1974).[109] Dornbusch found that male students felt there was the greatest correlation between mathematics and their future occupation of any field of study, while females felt English was most related to their jobs.

Moreover, the study found that the more closely the student related a subject to a future job the more important she or he considered the subject. Thus, it was not surprising that females were found to work harder and receive higher grades than males in every subject except math.

Dornbusch concluded from this study that females do less well in mathematics for three reasons: (a) they aspire to jobs which they think don't require mathematics; (b) they are not as pressured as males to do well in mathematics, and (c) when they do poorly, they ascribe this poor performance to a lack of ability, which in turn discourages increased effort.

Conclusion

It can be concluded from this review that significant and consistent sex differences exist in every aspect of occupational development examined. Thus, women's occupational potential is limited because of aspects of their (1) self-concept and sense of competence, (2) motivation to aspire to a wide range of occupational goals; and (3) acquisition of educational means to occupational attainment. Therefore, steps should be taken to provide women with whatever competencies, motivations, and educational experiences may be necessary in order to maximize their occupational potential.

III. Socialization Influences

The evidence just reviewed. "Sex differences in Aspects of Occupational Development" was concerned with factors internal to or characteristic of girls and women themselves. This section examines the evidence on the external factors which may be contributing to these patterns of sex differences, including teachers, parents, peers, and the media.

1. Teacher Influences

There are numerous ways in which teachers may contribute to sex differences in occupational development. They may model sex-typed behaviors, they may have sex-stereotyped expectations and/or attitudes, and they may exhibit different behavioral interaction patterns with their male and female students. In each of these ways, teachers may be (consciously or unconsciously) modifying, molding, and shaping patterns of behavior and attitudes which place limits on the occupational potential of their students.

a. Modeling

The distribution of male and female teachers in different educational areas itself creates a model which students may emulate. A recent survey revealed that teachers continue to conform to traditional sex-role stereotypes, in terms of the courses they choose to teach. For example, male teachers are overwhelmingly predominant in industrial arts courses (about 98%),[110] and female teachers predominate in home economics courses (about 99%).[111] Students cannot help but be aware of these patterns of sex-segregation, and incorporate them into their images of "appropriate" occupational roles.

That students prefer to model their behavior after like-sexed teachers has been demonstrated in several recent studies (e.g., Slaby & Frey, 1975).[112] The tendency to imitate same-sexed models is consistent with a large body of research from developmental psychology which demonstrates that similarity between observer and model is an important correlate of imitative behavior (e.g., Bandura & Huston, 1961;[113] Bandura, Ross & Ross, 1961[114]).

Evidence has also been presented which demonstrates the modeling phenomenon among older girls and young women, and in particular with regard to occupations (e.g., Shapiro, 1973).[115]

b. Sex-stereotyped Expectations and Attitudes

While there is not a great deal of research on the topic, that which does exist clearly indicates that teachers are not different from everyone else in the degree to which they hold sex-stereotyped expectations and attitudes. For example, studies by Feshbach (1969)[116] and Levitin & Chananie (1972)[117] found that student teachers and first and second grade teachers had well defined sex-role expectations for their students. In addition, teachers tended to exhibit a relative preference for the female role, which was roughly defined as "orderly, conforming, and dependent".[118] As a result, teachers place pressure on boys to accommodate to a pupil role which basically conflicts with their sex role while at the same time placing pressure on girls not to deviate from the female sex role.[119]

For her Ph.D. dissertation, Brenda Mary Samara examined teachers' conceptions of children's sex roles, and the relationships that certain

attitudes and personal background data may have on these conceptions.[120] It was assumed that teacher's attitudes and stereotypes "affect how they relate to their students, what they communicate to their students, and what they expect from their students".[121]

The results clearly showed that teachers' conceptions of children's sex roles were significantly different depending on the sex of the child. Moreover, an examination of the content of the teachers' conceptions of sex roles in "healthy" elementary school children revealed "a powerful, negative assessment of females".[122] A healthy girl was expected to be "talkative, interested in her own appearance, neat in her habits, express tender feelings and enjoy art and literature".[123] In addition, she was expected to be lacking in the following attributes when compared to healthy children and healthy boys: "aggressiveness, competition, control of emotions, independence, liking math and science, world orientation and leadership".[124]

A team of researchers at the Institute for Research on Human Resources at the Pennsylvania State University noted that stereotypes among vocational education teachers are still widespread.[125] For example, teachers felt that male students are more mechanically inclined and more capable of heavy lifting. In comparison to males, females were viewed as neater, less likely to curse, and as causing "sexual attraction" problems. However, a majority of the teachers saw no differences in the learning motivation of their male and female students, and none of the teachers openly objected to having a coeducational class.

c. Sex Differences in Teacher-Pupil Interactions

In addition to modeling, expectations, and attitudes, extensive research has been concerned with sex differences in the interaction patterns between teachers and students. The earliest work in this area was motivated by a concern that female elementary school teachers may be (consciously or unconsciously) "discriminating" against boys. For example, a number of studies had shown that elementary school children generally think that their teachers favor boys over girls (e.g., Meyer & Thompson, 1956;[126] Davidson & Lang, 1960[127]). Other studies had shown that elementary school teachers gave girls higher ratings than boys on general behavior and motivation (Davidson & Lang, 1960;[128] McNeil, 1964[129]) and are more favorably disposed toward girls and "female qualities" than toward boys and "male qualities" (Arnold, 1968;[130] Schaefer & Davis, 1968[131]). Some writers had gone so far as to suggest that female teachers are "predisposed to treat boys ineffectively and unfairly either out of ignorance or outright hostility" and that "if we had more male teachers working in the elementary grades, the achievement of boys would improve and the tendency of children of both sexes to see school as a primarily female institution would disappear".[132]

Brophy and Good (1974) did an extensive analysis and synthesis of the literature bearing on this question of whether teachers do in fact discriminate against boys.[133] The results of numerous observational studies indicated that if anyone is being "discriminated" against in the classroom, it is the girls and not the boys. For example, Cherry (1975) demonstrated that female preschool teachers initiated and maintained more

verbal interactions with boys than with girls, and used more attention-getting words with boys.[134] Serbin et. al. (1973) found that female preschool teachers (1) directed more verbal responses and loud reprimands to aggressive boys than to aggressive girls, (2) gave boys more support when participating cooperatively in classroom activities, and (3) gave boys more instructions and directions than girls. Girls, on the other hand, received more attention for dependent behaviors, such as remaining close to the teacher.[135]

Interestingly, while these teachers were aware of giving more loud reprimands to boys, they were unaware of other sex differences in their interactions. Thus, teachers differential interactions with boys and girls may be simultaneously operating on both a conscious and nonconscious level.

A whole set of observational studies at the elementary school level demonstrated similar interaction patterns (Meyer & Thompson, 1963;[136] Spaulding, 1965[137]). That is, teachers consistently had more frequent interactions with boys than with girls, both in terms of positive (e.g., reinforcing statements) and negative (e.g., reprimands) interactions.

While some studies have suggested that teachers tendency to interact more frequently with boys is essentially a reaction to more frequent and intense initiations by boys,[138] other studies have shown that teachers tend to initiate more interactions with boys, even after controlling for boy-initiated interactions.[139]

A Ph.D. dissertation by Edward Mulawka (1972) shed light on teachers classroom behavior specifically with regard to occupational stereotyping.[140]

The results demonstrated that sex role stereotyping is a common occurrence in the classroom. For example, teachers' displays of pictorial and written materials and textbooks showed significantly more references to males than females in wage-earning occupations.

Recent studies by Carol S. Dweck at the University of Illinois have taken interaction analysis one step further and have come up with some very intriguing sex differences. In one study, Dweck observed teachers' feedback to boys and girls in the classroom to see if there were differences not only in frequency of interactions, but in the nature of the feedback boys and girls receive.[141]

The results showed that almost all of the negative evaluation of girls' performance had to do with the incorrectness of their answers or the intellectual inadequaces of their work. In contrast, forty-five percent of the criticism directed at boys' work had nothing to do with its intellectual quality. In addition, teachers attributed boys' failures to lack of motivation significantly more than girls' failures. Thus, both the contingencies of feedback and the explicit attributions made by the teachers rendered negative evaluation more indicative of lack of ability for girls than for boys.

Dweck argued that the "unambiguous" failure feedback which girls are more likely to receive may lead to attributions to lack of ability, and subsequently interfere with their academic achievement. On the other hand, the "indiscriminate use of negative evaluation for boys may make it ambiguous and somewhat invalid as an assessment of their intellectual

performance".[142] Thus, the boy may be more likely than the girl to maintain his belief in his ability, despite the overall sex difference in the amount of negative evaluation received.

A second study by Dweck was designed to determine the relationship between teachers' feedback and children's attributions about their ability. The study experimentally manipulated the different contingencies of work-related criticism found for boys and girls in the classroom and evaluated the effects upon attributions.

The results clearly demonstrated that regardless of sex, children who receive failure feedback that is solution-specific are far more likely to view subsequent feedback from the same agent as indicative of ability than are children who receive feedback that is often solution-irrelevant. Thus, the patterns of feedback that have been observed in the classroom to distinguish teacher-boy from teacher-girl interactions can have a direct causal effect on children's interpretation of negative evaluation.

Taken together, the two studies by Dweck demonstrate that the pattern of evaluative feedback given to boys and girls in the classroom can result directly in girl's greater tendency to view failure feedback as indicative of their level of ability. Moreover, the observed sex differences in teacher-pupil interaction patterns may be having a cumulative effect, promoting different patterns of generalization to new situations. That is, girls attributions of failure to lack of ability may discourage continued "testing" of the environment, while boys' attributions of failure to the teacher or other agent may encourage testing of the environment when the agent changes. "It is far less

threatening to conclude something negative about a new agent than it is to confirm something negative about one's abilities."[143] In fact, the possibility that sex differences in attributions can lead to differential transfer of failure effects to new situations was tested and confirmed in a field study and its laboratory analogue (Dweck, Goetz, & Strauss, 1976).[144]

Finally, a few studies have attempted to determine if there are not only sex differences in teacher-pupil interactions insofar as the students are concerned, but in terms of male versus female teachers as well. These data have shown that sex of teacher is relatively unimportant, that there are very few differences between male and female teachers in their behavioral interaction patterns with boys and girls (e.g., Griffin, 1972;[145] Stasz, Weinberg, & McDonald, 1973;[146] Sikes, 1971[147]).

2. Parental Influences

In general, parents exert a tremendous influence on the occupational potential of their offspring. This influence comes in numerous forms, is both direct and indirect, conscious and nonconcious, subtle and blatant, intentional and unintentional. While it is acknowledged that there is probably some hereditary component to parental influence, this review is concerned only with those aspects of parental influence which are potentially modifiable.

a. Parental Attitudes, Expectations, and Sex-role Socialization Practices

Evidence indicates that parents begin socializing girls and boys differently almost immediately after birth, and continue doing so

throughout their children's development. For example, one study found that within 24 hours of birth, parents rated daughters as "significantly softer, finer featured, littler and more inattentive" than sons even through there was no difference in size or weight between the male and female infants.[148]

In addition to sex-stereotyping, there is evidence that parents exhibit different behavioral interactions with their infant sons and daughters. For example, Lewis (1972) showed that from the very first contact, parents are more likely to caress and speak softly to their girl babies, and throw their baby boys in the air more often.[149] While the evidence is still equivocal, several studies suggest that parents tend to have more frequent verbal interactions with their daughters than their sons.[150]

In their comprehensive review of the literature on sex differences, Maccoby and Jacklin (1974) cited a great deal of evidence that parents encourage sex-typed interests and discourage sex-inappropriate behaviors and activities.[151] For example, evidence indicates that parents provide their children with sex-typed toys (Rabban, 1950),[152] and have sex-typed expectations for their play behavior (Diepold, 1970).[153]

How aware are children of their parents sex-typed attitudes and expectations? Feldman and Feldman (1976) found a number of significant sex differences in children's perceptions about their parents' behavioral interactions with them.[154] For example, girls more often perceive their mother to be warm and democratic and reported that their mother spent more time talking with them than did boys.

A retrospective study by Celia Halas (1974) examined the perceived childhood socialization experiences, and the attitudes and behavior of adult women.[155] Halas found that those women who recalled wide social experiences and a lack of stereotyped reinforcement made wider educational choices, and reflected more liberal attitudes and behavior in their adult lives. Inasmuch as the study is essentially correlational, no causal connections should be inferred from these results.

Children are not only aware of their parents sex-role stereotyping, but they also behave in accordance with their parents' sex-typed expectations. A number of studies demonstrate that by the age of three, children are already exhibiting sex-typed preferences and behaviors (Mussen, 1969;[156] Maccoby and Jacklin, 1974[157]). Most of these studies have been based on comparisons of boys and girls verbal toy choices and some actual play behaviors.

b. Maternal Employment

Of all the parental factors that affect girls' occupational potential, mother's employment status has received the greatest attention. Research on maternal employment effects has found considerable evidence that daughters of working mothers hold more favorable attitudes toward work than do daughters of non-working mothers (e.g., Peterson, 1958;[158] Almquist and Angrist, 1970,[159] 1971;[160] Angrist, 1972;[161] Hoffman, 1963;[162] Stolz, 1960;[163] Wallston, 1973[164]).

As pointed out by Macke and Morgan (1974), however, much of this research has been based on white college samples, and therefore is not necessarily generalizable to other populations.[165] They noted that

working mothers who have daughters who are able to enter (often selective) colleges and universities probably represent those mothers who have been highly successful (at least from their daughters' viewpoints) in combining their work and family roles. Such select populations probably have a higher proportion of working mothers who are also positive role models than would be representative of the general population of working mothers.

Work by Grace Baruch (1972) suggests that a daughter's acceptance of her mother's role as a possibility for herself depends on how satisfied she feels her mother is with that role.[166] In a sample of 86 college females, Baruch found that maternal employment alone was not significantly related to the students' attitudes towards a dual role pattern for women. Instead, their attitudes depended on whether they perceived their mothers as endorsing a dual role pattern, and on how successfully their mother had integrated her dual role.

Similarly, mother's satisfaction with career and life has been found to be a mediating variable in determining daughter's career aspirations (Frieze, Parsons and Ruble, 1972).[167]

Baruch (1972) as well as others have found sup ort that maternal employment is associated with higher estimations of female competence.[168] For example, Vogel and associates (1970) compared the responses of 73 undergraduates whose mothers were employed to 47 undergraduates whose mothers were homemakers.[169] They found that the presence of an employed mother was associated with the tendency for their offspring of both sexes to perceive less of a distinction between the two sex roles.

At least two studies have found that daughters of employed mothers are more likely to aspire to traditionally masculine occupations than daughters of nonworking mothers (Douvan, 1963;[170] Tangri, 1972[171]). For example, in a sample of 200 senior college women, Tangri (1972) found evidence of role modeling of more educated working mothers among those women who had non-sextypical occupational choices (Role Innovators).

Various explanations have been suggested to account for the influence of maternal employment on daughters occupational potential. Peterson (1958) suggested that it is little more than the result of direct learning from maternal values and example.[172] Maccoby (1966) attributed it to higher intelligence resulting from greater freedom "to wander and explore".[173] Douvan (1963) suggested that it is the result of parental encouragement of greater autonomy and independence.[174] Finally, DePree (1962) pointed to higher achievement motivation as an intervening variable.[175] Tangri (1972) noted that in order for the childbearing practices associated with higher achievement motivation to take full effect, however, they must be accompanied by a parental attitude that achievement outside the home is "a relevant and enjoyable activity for women".[176] Consistent with Query's (1975) finding of higher academic achievement in daughter's of college-educated women,[177] Tangri notes that such attitudes tend to be more prevalent among more educated parents.[178]

Jeanne Marecek (1976) reported a longitudinal study, "Predictors of Women's Career Attainment", in which she attempted to tie together a number of the above variables.[179] The data was collected between 1966 and 1974 on a select sample of "unusually talented, motivated and advantaged"[180] young women.

The results revealed a number of significant effects associated with maternal employment. Daughters of working mothers, when compared with daughters of nonworking mothers, were more likely to (a) graduate in the Honors program (an intensive, independent course of study); (b) have chosen a career by the time they graduated; (c) have made plans for graduate school; (d) expect to postpone marriage and childbearing longer; (e) have entered graduate school; and (f) regard self-fulfillment as an important value. "In summary, daughters of employed mothers seem to have achieved at higher levels and to be more committed to a future career than daughters of unemployed mothers."[181]

Marecek's conclusion was that while maternal employment clearly is an impetus to women's occupational aspirations and achievement, it is not yet possible to determine why this is the case.

Researchers Ann Macke and William Morgan (1974) noted that in addition to being positive role models, working can also represent negative role models by exhibiting unhappiness and/or inadequacy in performing the dual role.[182] Moreover, both working and nonworking mothers may influence their daughters negatively by means of /traditional/ "norm-setting".

Taken together, these studies lead to the conclusion that there is no unconditional or unidirectional positive or negative effect of maternal employment on daughters' work orientations. Rather, both the significance and the direction of the maternal employment effect is mediated by other characteristics of the mother. Other things being equal, the effects are likely to be positive when the mother is relatively satisfied with her

career, comfortable and competent in her dual role, and when she transmits positive normative messages about the dual role.

c. Socioeconomic Status

A great deal of evidence points to socioeconomic (SES) differences in aspects of the occupational potential of young women. Not only are there SES differences in occupational choice, but there are also differences in the reasons students give for desiring to enter various occupations (e.g., Ginzberg, 1951;[183] Hollingshead, 1949;[184] Smelser, 1963[185]), in their educational aspirations (Bordua, 1960;[186] Sewell, Haller, and Straus, 1957[187]), and their choice of school curricula (Warner, Havighurst, and Loeb, 1944).[188]

A considerable amount of evidence attests to a sex by SES interaction in educational aspirations and attainment. That is, while high SES women are almost as apt to aspire to and attend college as are men of similar SES, women at lower SES levels are considerably less likely to aspire to and attend college than are men at comparable SES levels (Cross, 1972).[189]

Among her conclusions, Cross noted that "the largest reservoir of academically superior women are not now attending college consists of women from the lower socioeconomic levels".[190]

Research evidence suggests that these differences in educational aspirations and attainment reflect differential stress by parents of lower socioeconomic status on the importance of education for their sons and daughters. For example, sociologist Mirra Komarovsky (1962) found that blue-collar workers and their wives valued college education for their sons but viewed it as a "dispensable luxury" for their daughters.[191]

In another study, Froomkin (1970) found that college-educated mothers had equivalent educational aspirations for their sons than for their daughters.[192] Cross (1972) suggested that these differences reflect the general tendency for greater sex role stereotyping among the lower social classes.[193]

Another reason why parents of lower socioeconomic status may be more likely to stress education for their sons than for their daughters is that they simply have less financial resources to expend on their children's education. Consistent with this explanation is the finding by Baird (1973) that at all levels of undergraduate academic achievement, financial difficulties were cited by more women than men as a reason for not immediately entering graduate school.[194] Findings by Johnstone and Rivera (1965), however, suggest that lack of money is as much of an obstacle for lower class men as for lower class women.[195] Their results suggested that it is the middle-class woman who is more likely than the middle-class man to let lack of money prevent her from pursuing additional education.

Social class differences in socialization practices is still a third factor that may contribute to social class differences in the educational aspirations and attainment of women. For example, Kagan and Moss (1962) found some evidence of a relationship between mother's social class and her behavior toward daughters, but not sons.[196]

Finally, inadequate exposure to information and opportunities for further education may contribute to lower class womens' lower educational aspirations and attainment (Lopata, 1973).[197]

A recent study by Goodale and Hall (1976) addressed itself to the process by which these socioeconomic effects come into being.[198] That is, the research examined social psychological factors which were hypothesized to mediate the relationship between social origin and educational and occupational attainment.

Path analysis revealed that the paths for males and females differed dramatically. For males, the basic path linking social origins to career plans was:

Parental Background → Parents' Interest in Student's Schoolwork → Parents' Hopes for Student's College → Student's Own College Plans → Student's Planned Occupation

In general, the path for females was considerably simpler than for males. Of particular note is the fact that for girls there was no link from parental background to the remainder of the path. Fathers' occupation was not significantly related to any other variable, and none of the educational and occupational variables was linked to parents' interest as perceived by the girls. Of the four parental background variables, only mothers' occupation was related to work values, but no other variables in the basic path were associated with work values.

Based on these data, Goodale and Hall came to the conclusion that girls are more independent of the socioeconomic background of their parents in formulating their career aspirations, and that their career plans may be more dependent upon their own goals and ambitions than on those of their parents. "Girls, in short, are less likely than boys to inherit the career attainments of their parents."[199]

Inasmuch as several of Goodale and Hall's findings were inconsistent with previous research (e.g., equivalent educational and occupational aspirations for males and females), the study should be replicated. Based on just this one study, it is impossible to reach any firm conclusions on the linkages between socioeconomic status and girls' occupational potential.

d. Characteristics of the Family Background and Parent-Child Relationship

Several theories pointed to patterns of childhood experience with parents as important contributors to later occupational choice. The most prominent of such theories was that of Roe (1957), who hypothesized that such early patterns are the major determinant of whether an individual's occupational choice turns out to be people-oriented, or non-people oriented.[200] For example, over-protected children were hypothesized to rely heavily on their parents' occupational expectations. In contrast, parental rejection was hypothesized to result in agressiveness and a relative preference for non-people oriented occupations. The evidence for Roe's theory, as indicated earlier, is quite tenuous (e.g., Appleton, 1969).[201]

While it was not the major thrust of his theory, John Holland (1962) also described parental influences on offspring's occupational choice.[202] Holland assumed that "each parental type provides a large cluster of environmental opportunities, as well as some deficits which extend well beyond parental attitudes" (1973, p. 11).[203]

Holland also recognized the reciprocal relationship between the child's influence on the parent and the parent's influence on the

child..."children create their own environment by their demands upon parents and by the manner in which parents react to and are influenced by children."[204] Work by Bell (1968) provides evidence of this sort of reciprocity in parent-child relationships.[205]

Holland (1962) examined empirically the relationship between several family background variables, such as parents occupation, education and offspring occupational category.[206] A significant relationship was documented between fathers' occupation and offsprings' occupational code. These data should again be interpreted as indicative of a reciprocal relationship only; that is, no conclusions about direction of causality can be inferred from these data.

Several researchers have attempted to distinguish between the family background characteristics of women choosing traditional vs. nontraditional careers or lifestyles. (e.g., Tangri, 1972;[207] Patrick, 1973[208]).

In sum, these studies suggest that family background characteristics and parent-child relationships may exert an influence on women's occupational behavior, but probably not to the extent originally theorized by Roe. Moreover, there is not enough consistent research evidence to draw any firm conclusions about the nature of the relationship between various family background characteristics and particular patterns of occupational behavior.

3. Peer, Visual Media, and Other Socialization Influences

It is beyond the scope of this review to cover all of the socialization influences on womens' occupational potential. The

purpose of this section is to point out the most significant of the remaining influences.

a. Peer Influences

The importance of peer influence, in general, has been documented in numerous studies by noted child psychologist Urie Bronfenbrenner (e.g., Bronfenbrenner, 1967).[209] Other child psychologists have demonstrated peer reinforcement of sex-role behaviors in children as young as three years old, (e.g., Fagot & Patterson, 1969).[210] There is some evidence that girls are even more sensitive to peer and sibling influences during childhood than are boys (e.g., Feldman & Feldman, 1976).[211]

A number of recent studies have demonstrated the importance of (perceived) male support for females to break away from traditional sex roles and to pursue nontraditional careers (e.g., Frieze, Parsons & Ruble, 1972;[212] Hawley, 1971;[213] Westervelt, 1970[214]). For example, Peggy Hawley (1971) found that there is a significant relationship between the careers women choose and their beliefs regarding men's view of the feminine ideal.

Bailyn (1964) referred to men's attitudes as the most important source of support or hostility for the professional woman.[215] Katz (1968) provided empirical support for this contention.[216] In a sample of Stanford University women students, Katz found that the single largest influence on women's occupational decisions were the attitudes of their husbands, fiances, and boyfriends. Similarly, Edwards (1969) found that the values of marriage-oriented women related most strongly to their perception of their boyfriends values, in comparison to other possible influencing factors.[217] Among already married women, Wise and

Carter (1965) found that wives perceptions of their husbands' attitudes toward employment was the factor most influencing their own attitude.[218]

Using a very different research approach, Farmer and Bohn (1970) provided still more support for the importance of women's perceptions of men's attitudes.[219] These researchers were able to reduce "home-career" conflict simply by telling women to "pretend" that men like intelligent women and by suggesting that a successful combination of home and career was indeed possible to achieve.

Finally, a study by Ellis and Bentler (1973) suggested that "the opposite sex, rather the same sex, may serve as a primary frame of reference for a person's self-concept."[220]

Male support appears to not only influence women's decisions about whether or not to work and at what occupations to work, but also appears to influence women's choices about the acquisition of educational means to occupational attainment. For example, Westervelt (1970) found that a majority of women who were planning to continue their education or return to work considered "husband's approval" as the most important factor in their decision.[221]

Among married women at the highest professional levels, a supportive husband seems to be of almost overriding importance (Lopate, 1971).[222]

Finally, Tangri's (1972) study provided evidence that romantic relationships are just as important to role innovative women as to traditional women.[223] If this finding is taken together with the overwhelming evidence that women place great importance on the attitude

of their romantic partner towards women's roles, the conclusion that males' attitudes are paramount becomes inescapable. If we juxtapose these two findings with the evidence that males at all ages are significantly more sexist than females in their attitudes about women's roles, the profound seriousness of women's "dual role" conflict becomes all too clear.

b. Visual Media and Other Socialization Influences

The significance of the visual media as an agent of occupational socialization is increasingly being recognized. Television, newspapers and magazines, textbooks and instructional materials all act as socializers by conveying occupational information and providing occupational role models. The most recent evidence indicates that each of these vehicles of occupational socialization is replete with sex stereotypes, and thereby functions to restrict, rather than enhance, women's occupational potential.

1. Television

A recent estimate indicated that the average student watches about 15,000 hours of television before graduating from high school.[224] Studies show that frequent television viewing begins for most children at age three and remains high until at least age twelve (Schraman, Lyle and Parker, 1961;[225] Lyle & Hoffman, 1971[226]). Studies also clearly demonstrate that children model their own behavior after the behavior they have observed on TV (e.g., Liebert, Neale, & Davidson, 1973).[227]

Several recent studies have demonstrated the pervasiveness of sex-role stereotyping in prime-time TV programming (e.g., Women on

Words and Images, 1975;[228] U. S. Commission on Civil Rights, 1977[229]). For example, Women on Words and Images found that prime-time television conveys the message that men are more dominant, authoritative, and competent.

2. Newspapers and Magazines

Studies by Moser (1962),[230] Gutsch and Logan (1967)[231] and Goodson (1970)[232] have demonstrated the influence of the news media on children's occupational knowledge. Other studies have once again documented the pervasiveness of sex-role stereotyping in these media (e.g., Franzwa, 1976).[233]

3. Textbooks and Instructional Materials

Despite some very noteworthy advances in curriculum development in recent years, the textbook remains "the single most important teaching tool" (Black, 1967).[234] A recent survey of about 24,000 schools revealed that about 90 to 95 percent of school time is either directly based on or structured around the use of instructional materials, including textbooks (Komoski, 1975).[235] Wirtenberg and Nakamura (1976) demonstrated the striking parallel between the ontogeny of occupational aspirations and sex-biased educational practices, including sex-biased textbooks.[236]

A comprehensive review of the literature on textbook biases documents the pervasiveness of sex biases in textbooks at every level and in every substantive area (Wirtenberg, 1978).[237] This review showed that textbook biases against females fall into three major categories: invisibility, stereotyping, and inferiority. These biases are evident in the most recent studies (e.g., WOWI, 1975)[238] and across a wide-range of publishers and geographical regions.

Sex role stereotypes in textbooks were manifested in the grossly disparate occupational roles of men and women. Men were shown much more often in occupational roles, as well as in a much wider range of occupations. Conversely, the few times that women were shown to appear in occupational roles, these were limited to only the most sex-typed occupations (e.g., teacher, nurse).

Stereotypes were also the major determinant of the behaviors, traits and interests exhibited by the characters in the stories.

The problem of textbook bias is often compounded in the classroom by the use of sex-stereotyped bulletin board materials, sex-segregated seating arrangements, the use of sexist language, and myriad other institutionalized sexist practices (cf. Frazier & Sadker, 1973).[239]

IV. INTERVENTIONS TO ENHANCE ASPECTS OF GIRLS' OCCUPATIONAL POTENTIAL

During this decade, educators, researchers and others have begun to recognize the importance of early intervention, if womens' occupational potential is to be improved. As a result, a number of educational interventions have been developed and introduced into the educational curriculum. These interventions vary greatly in terms of:

1) the age or grade level at which they are introduced
2) their duration
3) the nature and focus of the intervention
4) the specific aspects of girls' occupational potential they are attempting to modify
5) the measures used to evaluate the impact of the intervention.

1. Preschool Through Elementary Level

Studies at the preschool through elementary level point to several tentative conclusions. The first conclusion is that the pervasive sex role stereotypes and sex-typed occupational choices of young children are in fact modifiable through educational intervention, particularly for girls. Although some studies were unsuccessful in modifying sex role stereotypes (Bloomberg, 1974;[240] Greenberg and Peck, 1973[241]), at least eight separate interventions provided concrete evidence of the essential malleability of sex-role stereotypes (Flerx, Fidler, & Rogers, 1976;[242] Guttentag & Bray, 1976;[243] Harkness, 1973;[244] Parks, 1976;[245] Bucher, 1974;[246] Ein, 1977;[247] Kesselman, 1974[248]).

Successful interventions included nonsexist symbolic modeling stimuli presented in books and in films, (Flerx et al., 1976;[249] Ein, 1977[250]), classroom instruction in nonsexist occupational role concepts (Harkness, 1973),[251] nonsexist teacher training and workshops (Kesselman, 1974),[252] and occupational units focussing on exposure to the broad spectrum of occupational possibilities (Bucher, 1974).[253] These positive results were demonstrated despite tremendous variation in the nature and the duration of the intervention, and despite variability in the measures used to test the effects of the interventions.

The most successful interventions appeared to be targeted for children at the upper elementary levels, particularly grades four and and five, and to involve active teacher participation. Interventions at the preschool and early elementary levels appear to not be as successful, although it is not clear whether this may be the result of inadequate measurement techniques. Inasmuch as younger children's

stereotypes are less sophisticated and well-defined, more attention should be devoted to developing measures which are appropriate to their level of cognitive development. It is possible that subtle changes in attitudes may have gone undetected by the fairly crude measures used in some of these studies. On the other hand, the male, female, and androgynous doll-choice technique (e.g., Flerx, Fidler & Rogers, 1976)[254] may be a useful evaluation technique for your children.

Another conclusion is that girls sex-stereotyped attitudes appear to be more easily modified than boys, at least as revealed by the measures employed in these studies. Several of the researchers interpreted this finding by noting that girls may be more receptive to information contradicting sex role stereotypes because they "gain greater freedom and self-esteem from altering their views while males must relinquish something of their previously perceived superiority in moving away from a stereotyped conceptualization of sex roles. Thus, some of the boys responses in the egalitarian intervention groups may have been defensive reactions."[255]

Still a fourth conclusion is that there appears to be a definite relationship between occupational knowledge and sex stereotyped beliefs and attitudes about occupations. This finding results in a strong recommendation for the inclusion of occupational units at the elementary school level.

Moreover, it is the low IQ students who appear to benefit the most from this sort of intervention. These students are also the ones who have traditionally been shown to have the most sex-stereotyped attitudes, and ultimately, to be limited to the most sex-stereotyped occupations.

A fifth conclusion is that it may be unreasonable to expect an intervention to result in an immediate modification of expressed occupational aspirations or plans. However, since the intervention may result in significant modification of the occupational roles which are viewed as available, desirable outcomes may be seen over the long term.

Finally, one study pointed to the importance of differentiating between "can" and "should" in measuring attitudes of children with respect to occupations (Ein, 1977).[256] Children are more sex-stereotyped in their "should" responses than in their "can" responses. This is but one example of the need for more careful and systematic attention which needs to be paid to the measurement techniques employed by researchers working in this area. Additional research, in combination with more careful analyses of these studies' methods and findings, is needed. Such research may be able to suggest a developmental model encompassing the most beneficial aspects and foci of interventions whose purpose is to enhance girls' occupational potential.

2. Junior High Level

Fewer studies have been conducted at the junior high level. Of the seven studies identified at this level, only one demonstrated significant positive effects. There is a great need for the introduction of interventions at this crucial developmental stage, and for careful analysis of the relative effectiveness of different interventions.

The interventions which have been studied include a "structured vocational exploration task" in the eighth grade (Hawkhurst, 1973),[257]

a "program of education and career exploration" in grades eight and nine (Olson, 1971),[258] a "career orientation program" in the ninth grade (Poulin, 1972),[259] a state-sponsored "Introduction to Vocations" course in the ninth grade (Tosh, 1971,[260] a curriculum on "Women in the Work Force" in grades 7, 9, and 11 (Vetter and Sethney, 1972),[261] and the introduction of mediated occupational information through the use of slides and audio tapes in the eighth grade (Zikmund, 1971).[262]

Interestingly, the only intervention which had a significant positive impact on students occupational attitudes was also the only one which focusses on women's occupational roles. In this study, Vetter and Sethney (1972) developed and field tested curriculum materials with students in grades 7, 9, and 11.[263] The purpose of the unit "Planning Ahead for the World of Work" was to bring about changes in girls' knowledge of, attitudes toward, and plans for the world of work.

The results indicated that students at all three grade levels acquired information about the world of work and about women's employment opportunities. Moreover, students' attitudes changed in the direction of greater acceptance of employment after marriage, and more plans to work after children are grown. A majority of students at each grade level indicated that the unit will influence their futures.

It is not clear why the other interventions were unsuccessful in bringing about more changes. At least three of these studies relied on the Vocational Development Inventory (VDI) as the major instrument of evaluation, and it is possible that this measure is not sufficently sensitive to the sorts of changes that may have been produced.

Alternatively, the interventions may not have been broad enough in scope, intense enough, or sufficiently sensitive to the needs of this particular age group. Clearly, additional research is required to answer these questions.

3. High School Level

Taken together, the studies at the high school level indicate that significant and dramatic changes can be induced as a result of several different types of interventions. Successful interventions included the reading of sex-linked vocational information (Hurwitz & White, 1977),[264] an intensive consciousness-raising curriculum (Abernathy et al., 1977),[265] a cognitive-developmental curriculum intervention focusing on Women in Literature (Erickson, 1973),[266] and a career awareness course with and without an assertion training component (Doran, 1976).[267]

Conclusion

The studies reviewed at all three levels point to the same conclusion. Sex role stereotypes, sex-typed occupational aspirations, and many other apsects of girls' occupational potential are modifiable. Still, the task remains for educators, practitioners, and researchers to develop and implement effective nonsexist interventions at every level. Eventually, these "interventions" may become a part of the regular curriculum, resulting in vast improvements in the occupational potential of girls. Ultimately, such a nonsexist curriculum could lead to vast improvements in women's occupational status.

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