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ABSTRACT

This volume consists of eight papers presented at a conference focusing on the ways in which the educational system influences sex equity and how the two are related to occupational stereotyping. Discussed in the first two papers are sex equity in vocational education and sex equity in education. Enrollment and staffing patterns in vocational education are examined. Covered next are the effects of school curriculum on young women. In the next paper the long-run labor market effects of vocational education on young women are analyzed. Following a paper on the roles of high school training and vocational stereotyping as means of socioeconomic placement, a paper is presented on the impact of vocational education in secondary schools on young women and young men. Described in the final paper is the American Institutes for Research study of sex equity in vocational education that deals with the efforts of states and local education agencies. The conference agenda and a list of conference participants are appended. (MN)

Education, Sex Equity and Occupational Stereotyping

Conference Report

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FOREWORD

The National Commission for Employment Policy has, since its establishment in the fall of 1974, focused its attention on the difficulties that various groups experience in securing footholds in the labor market, securing regular jobs that pay reasonable wages and that provide opportunities for advancement. As a result of its successive investigations, the Commission recognized that among the most disadvantaged groups were women, particularly minority women who confront major hurdles in becoming economically self-sufficient through the jobs that they are able to secure and the wages they are able to earn.

Accordingly, the Commission decided that it would select the issue of women's participation in the labor market as one of its principal areas of concern for the year 1980 with an aim of developing recommendations for public policy. The present volume of research papers and the discussions that emerged from a conference held under the auspices of the Commission in May 1980 represent a stage in the Commission's policy recommendations process. These findings and recommendations will be released as a Commission policy report early in 1981.

The present report should be viewed as a companion piece to another Commission effort involving research papers and a conference held in fall of 1980. This conference centered on the evaluation of the participation of women in various CETA programs and will result in a special report, The Experience of Women in Federally Sponsored Employment and Training Programs, which will also be issued in early 1981.

This volume is centered around the ways in which the educational system influences sex equity and how the two are related to occupational stereotyping. The phenomenon of occupational stereotyping is beyond dispute. About seven out of every 10 women who work outside their homes are employed in a limited number of occupations from nursing to domestic workers that are characterized by a predominance of women workers. This heavy concentration is associated with the following characteristics: the wage levels are conspicuously lower than in occupations that have a predominance of male workers. The much lower wages that women earn, on the average, result in many women having inadequate annual incomes, especially those women who are heads of households. Since many of these low-earning women are the sole support of their children, it follows that their weak income position has an adverse effect on the developing opportunities open to their children, many of whom are reared in or close to poverty.

The chapters that follow seek to unravel and assess the extent to which the process of secondary and vocational education contribute to occupational stereotyping by influencing girls and young women to select courses and pursue training that steer them into traditionally female fields of employment.

The research papers and the accompanying discussions were illuminating rather than definitive. What the authors reported was interpreted in many instances differently depending on the experience and expectations of the reviewers. A few points can be extracted, however, to encourage the interested reader to peruse the report with the care that this complex area deserves:

- Family and culture were found to play major roles in the educational and occupational planning of girls and young women. Hence, one must be careful not to put all of the responsibility for stereotyping onto the educational system. At the same time, one must recognize that most schools tend to reinforce the stereotyping that is deeply ingrained in our, and most other, societies.

- The principal arena in which schools could make a difference would be to encourage their female pupils to think more broadly about the curriculum choices and to pursue courses that would facilitate their entrance into hitherto male-dominated jobs and careers.

- The 1976 amendments to the Vocational Education Act provided for a sex equity coordinator in each State to encourage more women to enter curricula that were previously almost the sole domain of male students. Because of the lapse of time between the passage of the amendments, the appointment of the coordinators, and the collection and analysis of followup data, no definitive evaluation was possible about the success of this particular intervention. Preliminary data pointed to some shift in enrollments but this unquestionably reflected many factors in addition to the appointment of a sex equity coordinator.

- Many participants were critical of the absence of strong enforcement efforts by the several Federal agencies that had responsibility. Clearly, this finding should be acted on during the Congressional reauthorization of vocational education which is scheduled for 1981.

- During the course of the Conference discussions, the complex problem of equal pay for work of equal value was raised not once but repeatedly. The agenda and time, however, did not permit an exhaustive review.

The Commission in the findings and recommendations that it will forward to the President and the Congress early in 1981 will have had the benefit of drawing on the materials contained in this volume. Accordingly, it is doubly fitting that I express on behalf of the Commission our collective thanks to the many persons and organizations who contributed and, in particular, to the writers of the research papers, the speakers and participants at the Conference, and to several members of our staff. Dr. Patricia Brenner carried the primary responsibility for the design and execution of this effort. Dr. Brenner prepared the agenda, selected the participants and served as rapporteur of the two-day conference. She also was the primary editor of this volume. Dr. Ralph Smith had oversight of this effort, and Ms. Laura von Behren saw the material through the press.

ELI GINZBERG
Chairman

INTRODUCTION

The National Commission for Employment Policy-sponsored conference on "Education, Sex Equity and Occupational Stereotyping" was held on May 5 and 6, 1980, at Georgetown University in Washington, D. C. The sessions of the conference varied in topic and format, and the contents of this volume reflect this variety. The first day of the conference was devoted to vocational education, and the second day to more general issues of the experiences of girls in elementary and secondary education that may contribute to occupational stereotyping. Some of the participants in the conference made presentations on assigned topics and others served as discussants. In addition, a few of the experts on vocational education had been asked to prepare papers that expanded on the presentations they made. This volume includes these separate vocational education papers, as well as summaries of all of the sessions.

The Commission was particularly interested in reviewing evidence on the experience of women in vocational education programs because hearings on the reauthorization of the vocational education legislation were to begin in the fall of 1980. Although vocational education is the primary curriculum of no more than one-third of high school students, it is intended to facilitate movement from education to employment, and it is the only curriculum that receives direct Federal funding. Of course, students who enroll in vocational education in high school and postsecondary institutions have already developed attitudes and sex-role identities that are partly shaped in elementary school. In addition, students in other high school curricula (academic and general) are also subject to mechanisms that contribute to the occupational stereotyping of women. Hence, the second day of the conference was devoted to a discussion of the mechanisms that contribute to sex-role socialization in the schools, be they in vocational education or elsewhere.

Presentations during the first two of four sessions on vocational education reviewed the data and research on access of women to vocational education programs and on the effects vocational education has on the labor market experiences of men and women. The third session considered the impact of legislation, especially the 1976 vocational education amendments, on the treatment of women in vocational education programs. The final session was devoted to policy issues.

The summary of the presentations and ensuing discussions of the treatment of women in vocational education are provided in Chapter 1 of this volume. In conjunction with the presentations they made, four of the participants prepared papers for the conference that are also included in this volume. Two other papers prepared previously by participants but highly germane to their presentations and to sex equity in vocational education also are included.

The subtitle for the second day of the conference was "how to improve what girls are being taught and the way they are being taught in the schools." The sessions focused on the ways that the school system socializes girls and boys concerning appropriate roles for both sexes and thereby affects their occupational aspirations and occupational choices. Participants in the first three sessions of the second day addressed research on the mechanisms of sex-role socialization in the schools: textbooks and other teaching materials, counseling and role models, differential teacher interaction with students in the classroom, and enrollment in math courses. The concluding session was again devoted to policy issues.

The participants for the second day were not asked to submit papers for the conference because the Commission already was sponsoring an extensive review of these issues that was in progress at the time of the Conference.[1] Instead, a summary of the sessions is provided.

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1. This review will be published separately as a Commission Technical Report entitled, "The Development and Maintenance of a Segregated Labor Force: Review, Synthesis, Critique of Recent Research," by Linda J. Waite and Paula M. Hudis.

SEX EQUITY IN VOCATIONAL EDUCATION*

Beginning with title VI of the Civil Rights Act of 1964, which prohibits discrimination on the basis of race, color, or national origin in any program or activity receiving Federal financial assistance, the Office of Education of the Department of Health, Education, and Welfare (now Department of Education) has had the authority to bring sanctions against recipients of Federal vocational education funds who engage in discriminatory practices. However, the Office of Education paid little attention to problems of discrimination in vocational education during the 1960's. Title IX of the Education Amendments of 1972 expanded the Office of Education's responsibility for enforcement of civil rights legislation by prohibiting discrimination on the basis of sex in education programs receiving or benefiting from Federal financial assistance.

In 1973, HEW was sued for failure to enforce title VI in a number of education areas, including vocational education (Adams v. Califano). As a result of the litigation, the Department was directed by the court to enforce civil rights requirements in vocational education programs through compliance review, a survey of enrollments and related data, and the issuance of guidelines explaining the application of title VI and title IX regulations to vocational education.

Congress has also taken an interest in sex equity in vocational education. As part of its oversight hearings preparatory to reauthorization of the Vocational Education Act, the House Subcommittee on Elementary, Secondary and Vocational Education of the Committee on Education and Labor held hearings in 1975 on "Sex Discrimination and Sex Stereotyping in Vocational Education." As a result, the Vocational Education Act as amended in 1976 is very specific in both the emphasis to be placed on sex equity and on a variety of mechanisms for encouraging States to promote sex equity in their use of Federal funds.

The above legislative review sets the background for the conference. It was intended that the proceedings would shed light on vocational education reauthorization issues.

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*This summary was written by Patricia Brenner who introduced the sessions on sex equity in vocational education by reviewing the relevant Federal legislation.

Session One

The topic of the first session[1] was "Differential Treatment of Women and Men in Vocational Education Programs," and its purpose was to survey available data on access to programs. Presentations were made by Laurie Harrison of the American Institutes for Research (AIR), Jan Grassmuck of the Congressional Budget Office (CBO), and Sue Berryman of the Rand Corporation. Discussants were Gene Bottoms of the American Vocational Association (AVA), and Roslyn Kane of Rj Associates.

Laurie Harrison discussed AIR's study of sex equity in vocational education.[2] The basic data for the study were derived from two sources: Structured interviews with key vocational education personnel in 49 States and the District of Columbia, and staff visits to a random sample of 100 schools offering vocational courses. The intent of the study was to determine whether State and local education agencies (LEA's) were fulfilling the mandate of the 1976 Vocational Education amendments to achieve sex equity in vocational education training programs. Tables 1 and 2 from the AIR study indicate that neither States nor localities have responded vigorously to that charge.

In her prepared remarks, Harrison surveyed the trends in enrollment patterns in vocational education. A comparison of data from surveys conducted by the Bureau of Occupational and Adult Education (BOAE) in 1972 and the Office of Civil Rights (OCR) in 1974 with data from the 1978 AIR study found no substantial overall change in the extent of sex stereotyping in vocational education between 1972 and 1978. Most noteworthy, however, was the finding that where efforts have been made to reduce sex stereotyping, these efforts have met with success. Hence, it does appear that a reduction in sex stereotyping can be achieved in vocational education programs and that, where this has not yet been achieved, the problem lies in the lack of enforcement of the law's sex equity provisions.

The overall pattern of enrollment by sex in vocational education can be summarized quickly. Of the seven defined occupational areas, three (health, home economics, and business and office) are "traditionally female," i.e., over 75 percent

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1. See the appendix for the Conference agenda.

2. This report which reprints a selected portion of the AIR study appears later in the volume.

of those enrolled were female in both 1972 and 1978. Three others (technical, agriculture, and trade and industrial) are "traditionally male," i.e., over 75 percent of those enrolled were male in both 1972 and 1978. Only one occupational area (retail sales) is "traditionally mixed," i.e., females numbered 45 percent of the enrollment in 1972 (BOAE data) and 42 percent in 1978 (AIR data).

According to the AIR data, women have slightly increased their participation in traditionally male programs in technical and agricultural areas since 1976, but there has been virtually no change in their participation in traditionally male programs in the trade and industrial area. The only substantial change in male enrollment in traditionally female areas is in home economics, with approximately a 10 percentage point increase in the proportion of male enrollments in that occupation.

Harrison's concluding comments stressed the important finding that a strong positive connection exists between the extent of equity activity in a school and the proportion of nontraditional enrollment in that school. Thus, greater emphasis on sex equity does result in broadening occupational choices according to the AIR study.

In the second presentation, Jan Grassmuck from the Congressional Budget Office (CBO) reviewed estimates of the overall distribution of employment and education funds to youth aged 12 to 22, as well as estimates of the distribution of funds to and participation of males and females in vocational education and CETA programs. A CBO report argues that "current Federal education policy for youth in high school is not well targeted on the young people with the greatest need, largely as a result of the untargeted vocational education basic grants program. About 60 percent of the students served by vocational education programs are in grades 9 through 12, and the majority of these students are white and from middle-class backgrounds."[3]

Grassmuck pointed out that about half of the overall enrollment in vocational education is female. Although data on expenditures by sex for vocational education are extremely sketchy at best, Grassmuck proposed three reasons to suspect that the expenditure per female in vocational education is less than the expenditure per male.

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3. Congressional Budget Office, Youth Employment and Education: Possible Federal Approaches, Budget Issue Paper for Fiscal Year 1981, (Washington, D.C.: Congressional Budget Office, July 1980), p. 21.

First, it was suggested that in vocational technical schools men traditionally have had a much broader range of classes to choose from than have females. Secondly, equipment and operating costs for classes that have been traditionally male are greater than for classes that have been traditionally female. Thirdly, student/teacher ratios are likely to be lower and, consequently, costs higher in traditionally male programs. If confirmed, this finding also has implications for the quality of the training received by men and women.

Sue Berryman addressed the question of whether differences in participation rates reflect differences in demand or supply. Access to programs will not be accurately measured by participation rates if women have a strong preference for traditional programs.

Berryman's comments were based on a study of women in the military that is currently being conducted by the Rand Corporation. The experience of women in the military is potentially a very illuminating test case because military recruitment offices have recently had a strong incentive to enlist females. In addition, the Army now enlists a person for a specific occupational slot. The data thus allow the identification of females who choose either traditional or nontraditional occupations. According to the Rand study, nontraditional occupations are chosen by white female recruits 58 percent of the time and by black female recruits 41 percent of the time.

The data on attrition rates indicate that females leave nontraditional jobs at higher rates than do men. Also, black women have higher rates of attrition from nontraditional occupations than do white women. The experience of women in the military highlights the difficulties involved in recruiting women into nontraditional training. To some extent, perceived inability to apply the training, because the participant believes she will not be hired once trained, is alleviated because the military guarantees a position. Nevertheless, most recruits, male and female, do not make the military a lifetime career. Women may choose not to train for nontraditional occupations in the military for fear that they will not be able to transfer their skills to the private job market.

Gene Bottoms, Director of the American Vocational Association, cited some improvement in particular skill categories since 1976 in the enrollment of women in nontraditional vocational education programs. He stressed that insufficient time has passed since implementation of the 1976 Amendments to determine their full impact. He stressed the importance of peer, family, and community influences as constraints on the ability of vocational education

programs to attract women into nontraditional training. He suggested that channeling women into traditionally male jobs is made especially difficult because of a "double negative" associated with those jobs, i.e., the jobs are both non-traditional and blue collar.

Roslyn Kane, owner of a private consulting firm that has done extensive research on women in vocational education programs at both the secondary and postsecondary levels, discussed the need for better data in vocational education. According to Kane, one of the greatest difficulties for researchers is getting data on how many of the 16 million persons said to be taking vocational education courses are actually involved in a vocational education program that they expect to use as a career-entry mechanism. Many of these individuals are taking vocational education courses as a minor part of their regular high school schedule. For example, some males may learn auto mechanics simply to be able to repair their own cars.

Kane also pointed out that it is important to distinguish between persons taking secondary and those taking postsecondary training. Significantly more women move out of the college preparatory track into vocational education at the post-secondary level than do men. Thus, according to Kane, more training needs to be made available at the secondary level in occupations such as health.

Kane said that career education has had an impact on the selection of courses by students and should be expanded. She said it has been found that male vocational teachers are more influential advisors than are high school counselors. Finally, Kane recommended that promotion of sex equity in vocational education should include goals and timetables. She pointed out that the Maritime Commission in 1972 was the first agency to require such goals and timetables and that, as a result, there is presently a high percentage of women apprentices in the maritime trades.

Discussion

Wendy Wolf, National Commission for Employment Policy staff member, responded to a question raised by Gene Bottoms of the AVA about the expected speed of change and how to judge progress in sex equity in vocational education. Wolf said that it is reasonable to expect greater change in the proportion of women enrolled in nontraditional vocational education programs than in the proportion of women engaged in nontraditional occupations nationwide. It will take longer to change the stock (e.g., the proportion of women physicians) than the flow (e.g., the proportion of women in medical school) for several reasons. First, the stock is large compared with the flow. In addition, differential rates of turnover and rates of growth produce stability in the sex segregation of the labor force compared with sex segregation in education.

In the discussion period, Carol Gibson, Director of the Education Division of the National Urban League, commented on data problems in vocational education, especially the difficulty of determining which students were truly taking a vocational education curriculum. Laurie Harrison of the American Institutes for Research noted that the AIR study had made a strong effort to distinguish between program and course participants and also to differentiate data by age groups.

Roslyn Kane questioned whether vocational program operators really were interested in assisting special needs groups since funds targeted for these groups were either not being matched by States, as required, or were unused and being carried forward into the next fiscal year. Gene Bottoms responded that, in some instances, States were finding it difficult to utilize Federal money because such funds could only be used for the "excess cost" of services and because the funds had to be matched by the State. Matching proved to be a problem where budgets were restricted, especially in those States affected by the "Proposition 13 Mentality."

Gene Bottoms further noted that it is primarily large employers who are looking for women in nontraditional occupational fields, perhaps because they are under the most pressure by the Federal Government to do so. Those who complete vocational education programs often seek jobs with small employers who may be less likely to recruit nontraditional employees.

Session Two

The second session of the Conference focused on the "Differential Effect of Vocational Education on Men and Women." For this session, the Commission succeeded in drawing the attendance of authors of all the major longitudinal studies of the correlates and consequences of curriculum choice that compare effects for males and females.[4] Presentations on

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4. The studies are: John Grasso and John Shea, Vocational Education and Training Impact on Youth, Carnegie Council on Policy Studies in Higher Education, 1979; Sandra L. Hofferth, High School Experience in the Attainment Process of Non-College Boys and Girls: When and Why Do Their Paths Diverge? Working Paper 1303-01 (Washington, D.C.: The Urban Institute, 1980); David Wiley and Annegret Harnischfeger, High School Learning, Vocational Tracking, and What Then? (Evanston, Ill.: CEMREL Inc., 1980).

the research were made by John Grasso, Sandra Hofferth and Annegret Harnischfeger.[5] Discussants were David Wise of the Kennedy School of Government, Harvard University; Arvil V. Adams, Research Professor of Education Policy and Economics, George Washington University; and Elinor Woods of the Huron Institute. Since this report includes papers by Grasso, Hofferth, and Harnisfeger and Wiley, as well as critique of the three studies by Arvil V. Adams, only the major points of the discussions will be summarized here.

Each of the three addresses the important question of whether vocational education improves the labor market prospects of participants compared with participants engaged in the general curriculum. The studies indicated that young men who have participated in vocational programs have no more success in the labor market than those who have not, after adjusting for other differences between the two groups. On the other hand, Grasso and Shea found that female students in the vocational education curriculum were more likely to finish high school and to have higher hourly wages and higher annual earnings than their counterparts from general programs. For certain women, vocational education also reduced the probability of unemployment. These results were particularly related to the acquisition of typing and other clerical skills for which demand is projected to expand and which can be successfully taught outside the workplace. A troublesome implication of these findings, however, is that channeling women into clerical training, while increasing their employment prospects, also perpetuates the occupational segregation that has previously held down women's earnings.

In his presentation, Grasso stated that it was unfortunate that the studies of the consequences of curriculum choices had not made comparisions of male/female wages and the reasons for their differences. In characterizing sex differences in the choice of vocational programs, Grasso pointed out that men frequently choose programs which prepared them for blue collar occupations, while women were more likely to choose training for white collar occupations.

Grasso also pointed out that, irrespective of curriculum choice, women enter traditionally female jobs. Of women students who end up in "female occupations," those who took a vocational education curriculum did better than those who took the general curriculum. Consistent with the Hofferth findings, females in traditional jobs earned more than those in nontraditional jobs.

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5. Papers prepared by John Grasso, Sandra Hofferth and Annegret Harnischfeger and David Wiley appear later in this volume.

Sandra Hofferth reported on her findings of the effects of high school curriculum on the wages and occupations of young men and women who do not attend college. She found that high school curriculum had no impact 10 years later on the wages of white and black men. Ten years after high school (at age 27) hourly wages of white women who had taken the academic curriculum in high school but who did not later attend college were higher than those of women who had been in the general curriculum, while those of white women in the vocational curriculum were lower. These results held after adjusting for other factors, including ability. Black women who took the commercial curriculum in high school had higher wages 10 years later then those who took the general curriculum.

For black and white women who took vocational programs other than commercial, being in an occupation with a smaller proportion of women appeared to result in lower wages relative to those in traditional jobs. Hofferth cautioned, however, that women who did not take traditional jobs took jobs in the "mixed" category and that the study did not compare women who took traditional jobs with those who secured high-paying nontraditional jobs. Finally, Hofferth noted that studies to date had not been able to examine the effects for women of taking nontraditional vocational education programs because very few women were taking such programs.

Annegret Harnischfeger described the results of her analysis (with David Wiley) of the National Longitudinal Study of the High School Class of 1972 concerning high school tracking and vocational stereotyping. The last followup interviews used in the study took place in 1976. Harnischfeger reported that white males are overrepresented in the academic track, while minority males are overrepresented in the general track. White females are overrepresented in both the vocational and academic tracks, while black females are overrepresented in the general track and underrepresented in the academic track. Vocational education appears to attract black males with relatively low scores on achievement tests, but this is not true for black or white females.

White female vocational track graduates fared poorly in the labor market. Although their academic performance was similar to that of general track females, they were the least likely to acquire postsecondary training and had the lowest average female wage rate. Black female general and vocational graduates in the study sample had experienced unemployment one or more times and at a higher rate than any other sex/race curriculum group.

Discussion

David Wise of the Kennedy School of Government suggested reasons why vocational education might appear to have a positive effect on labor market outcomes for women. First, achievement is highly related to tracking for men, but not for women. Thus, women in the vocational education track tend to be relatively high achievers compared with men. Second, the vocational education track for women may be more job-specific than it is for men.

Elinor Woods from the Huron Institute, which is conducting a review for NIE of the studies of vocational education outcomes, elaborated on some of the data and measurement problems in vocational education. One of the features that has come out of the survey to date is the great variety of programs that fall under the rubric of vocational education. Woods questioned how well the Government can target resources when it is dealing with such an amorphous program.

Adams,[6] of George Washington University, noted differences in the data bases and methods of analysis used in the three studies reported by Grasso, Hofferth, and Harnischfeger. He commented on the roles of home, community, and schools in shaping curriculum choice. Evidence from the Grasso-Shea and Hofferth studies suggests that schools reinforce patterns of curriculum choice generated by the wider social setting, but that the schools have little direct, independent effect. He commented on the absence, however, of a well-developed theory of curriculum choice. Probably both the tracking model and the choice model contain elements of truth. Adams suggested that the Federal role in vocational education should relate to how schools can change broader social institutions and thus indirectly affect occupational choices of young women.

Session Three

The third session was devoted to a description of the experience under the sex equity provision of the 1976 Vocational Education Amendments. Presentations were made by Barbara Bitters, Special Assistant for Sex Equity, Bureau of Occupational and Adult Education, Department of Education; Laurie Harrison of the American Institutes for Research; and three States' sex equity coordinators-- Loydia Webber (Georgia), Anna Biermeier (Wisconsin), and Carol Jabonaski (New York). The discussants were Janet Wells of the Lawyers' Committee for Civil Rights Under Law and Louise Vetter, Program Director for Sex Equity at the National Center for Research in Vocational Education.

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6. Adams' paper appears later in this volume.

Barbara Bitters pointed out that the 1976 Amendments not only call for the elimination of sex discrimination in vocational education, but also for the elimination of sex bias and sex-role stereotyping as well as mandating affirmative action to achieve sex equity. Bitters described the 10 functions of the sex equity coordinators and noted that, by law, each State must assign a full-time person to the position of sex equity coordinator and must allocat at least $50,000 for that office.

Bitters suggested several important issues related to the success or lack of success of sex equity coordinators in different States. One important issue is the position of the coordinator in the State's educational hierarchy. Those who are directly responsible to the State Director for Vocational Education generally have more impact that those who are located further down in the administrative hierarchy. Another important issue involves the amount of work assigned to the sex equity coordinator. Since the legal mandate is quite broad, it would be almost impossible for one person to review and monitor all of the vocational education programs in a State. A third issue is the establishment of measures of success by which to evaluate the sex equity coordinators. Change in enrollments is an obvious measure but, according to Bitters, should not be relied upon too heavily. Instead, she suggested that success should be measured by how well the coordinators fulfill the law.

Bitters noted differences in the views of the sex equity coordinators and others involved in vocational education concerning changes that should be made in the sex equity legislation. In general, the coordinators would like to see the language in the law tightened, while the vocational education establishment wants it weakened.

Laurie Harrison was the second speaker in the afternoon session on "New Initiatives to Improve the Treatment of Women in Vocational Education." Harrison reviewed the findings of the AIR study on how State and local jurisdictions have responded to the requirements of the 1976 legislation. In general, the response has been much more passive than active: while two-thirds of the States report review and monitoring activity, only one-third report activity to correct problems that are discovered. Since a major intent of the 1976 amendments was to induce an active commitment to sex equity, future reviews should be made after sufficient time has passed to allow for implementation and should look closely to determine whether there has been any progress in meeting that goal.

Policy recommendations in the AIR study emphasize active, rather than passive, efforts to overcome sex bias and sex stereotyping. For example, the study suggests that review and monitoring activities assess progress in reducing sex stereotyping rather than simply identify efforts in this direction.

In addition, the AIR study recommends that considerable effort be made to disseminate the results of successful programs to reduce sex inequity.

At this session two current and one former sex equity coordinators spoke about the experience in their States. Loydia Webber discussed equity problems in Georgia where 28 percent of the population is black. Her comments addressed particular barriers faced by the sex equity coordinators, especially in dealing with a male-dominated education hierarchy.

Anna Biermeier is a past sex equity coordinator for postsecondary vocational education in Wisconsin. She recommended that greater financial resources be put into the sex equity coordinator position and that a liaison be established between sex equity coordinators and Equal Employment Opportunity Commission compliance personnel. Finally, she emphasized the importance of technical assistance and urged timely sharing of information about successful programs.

While describing sex equity efforts in New York, sex equity coordinator Carol Jabonaski listed several factors that are contributing to a successful program in her State. Jabonaski, who has a staff of seven and a budget of $200,000, was appointed to her position promptly after enactment of the 1976 amendments and thus had time to develop specific programs. She reports directly to the State Director of Vocational Education and thus commands a relatively senior position in the State education hierarchy. Consistent wth AIR study findings, the New York case confirms that when a State makes a real commitment, backed up with adequate funding, reduction in sex stereotyping does occur.

Discussion

Janet Wells, from the Lawyers' Committee for Civil Rights Under Law, expressed concern that there may be a move to weaken targeting on women in the reauthorization of the Vocational Education Act. She criticized the lack of enforcement of the 1976 amendments at the Federal level. She also urged that a requirement to conduct hearings on State vocational education plans be added to the law.

Arvil Adams suggested that what really may be essential for sex equity is the enforcement of legal rights of women in the labor market. If such enforcement does occur, schools may then begin to respond to changes in occupational demand.

Phyllis McClure, of the NAACP Legal Defense and Education Fund, disagreed with Adams, saying that schools play a major and active formative role in the occupational choice of women. Jabonaski, concurring with McClure, said that placement of women in nontraditional occupations was not difficult once the women were trained.

Session Four

The final session addressed the question: "How Can the Federal Government Improve the Treatment of Women in Vocational Education?" Statements were made by Carol Gibson, Chair of the National Advisory Council on Vocational Education, and member of the National Commission for Employment Policy; David Evans from the Subcommittee on Education, Arts, and Humanities of the Senate Labor and Human Resources Committee; and Phyllis McClure of the NAACP Legal Defense and Education Fund. These statements were followed by a general discussion.

Gibson asked rhetorically, "Is there life for vocational education after reauthorization?" She indicated that one major problem is that urban areas that need the most funds for capital investment for vocational education programs are least likely to get such funds under current delivery formulas. Another need concerns the large number of girls who drop out of high school due to pregnancy.

Evans provided a legislative perspective on vocational education. He said that the program has suffered from recisions in funding in the 1970's and that it usually takes 5 years for a program to recover from such cutbacks. He pointed to the need for mandatory compliance and for putting force into the requirements for equity.

Evans suggested that the part of legislation dealing with consumer and homemaking skills needs to be updated. One idea would be to do away with this title of the legislation completely and replace it with a new title called "Life Skills." This new program would be intended for both sexes.

Evans said that vocational education suffers from imposed inferiority. Requirements are placed on vocational education that are not placed on other education programs funded by the Federal Government. In light of the proposed new youth legislation, Evans pointed to congressional interest in promoting the acquisition of basic skills and employability skills through vocational education.

McClure criticized lack of support at the Federal level for the sex equity coordinators. She pointed to ceremonial incentives such as plaques and certificates as weak substitutes for financial incentives. Despite these problems, she felt greater progress for sex equity has been made in vocational education than in CETA and YEDPA training programs.

In the ensuing discussion there was support for the suggestion that what is needed is more substantive rather than symbolic prescription in the sex equity provisions of the vocational education legislation. Specifically, neither goals and timetables nor a credible threat to withhold funds have been a part of enforcement procedures.

SEX EQUITY IN EDUCATION

The second day of the conference was devoted to consideration of how experiences in the schools contribute to sex-role socialization that may be detrimental to girls' occupational potential.[1] The sessions are summarized individually in this chapter.

Views of Appropriate Roles of Women: Session One[2]

Counselors and Counseling

Mary Ellen Verheyden-Hilliard began the session by reporting on a 1976 study that documented pervasive sex stereotyping in counseling. Attitudes of counselors have been found to differ very little from those of the general public on sex roles and sex stereotyping. Although little difference between male and female counselors' attitudes exists, male counselors may be somewhat more sex-biased and the amount of bias is positively related to age. A recent study by Englehard on counselor attitudes confirms these findings.

Two other recent studies have addressed the question of counselors' knowledge of work and career problems faced by women. Both the Bingham and House and the Hawley studies found counselors to be virtually ignorant of work-home conflict, occupational segregation, or discrimination.

Verheyden-Hilliard advocated a "proactive" stance by counselors to encourage young women to enter nontraditional occupations. She thought a combination of consciousness raising (as developed in the women's movement) and an objective approach, which presented the realities of discrimination, wage differences, divorce rates, and other facts would be the most effective. But, among high school students, traditional ideas appear to be deep seated. Verheyden-Hilliard reported a study in which a female counselor had worked intensively with a small group of girls over an extended period giving them information about nontraditional jobs. Testing of the girls after this intervention showed them to have increased their awareness of the range of job possibilities open to women but they were no more likely to say they aspired to enter a nontraditional occupation.

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1. See Appendix A for the complete conference agenda. In setting the agenda and selecting the participants for the second day of the conference, the Commission benefited greatly from the assistance of Susan Klein, Barbara Richardson, and Jeana Wirtenberg of the National Institute of Education.

2. This summary was written by Linda Waite.

Lee Richmond discussed a survey of approximately 2,000 vocational education students and 39 vocational education counselors in Maryland. The vocational education students reported the same types of problems as other students. A relatively large proportion (36 percent) intended to go on to college and many wanted counseling about the possibility of college. About 40 percent wanted career counseling. Counselors tended to say that they did not have enough time for the students and tended to perceive the students as having more personal (i.e., drug- and alcohol-related) problems than the students themselves reported and fewer career-work problems.

Books and Other Teaching Materials

Jeana Wirtenberg reported on a large project on bias in textbooks completed for the Office of Civil Rights (OCR). She gave a brief summary of this research, pointing out that women suffer from three kinds of bias in textbooks: (1) underrepresentation or omission, (2) stereotyping or distortion, and (3) inferiority or denigration. She mentioned a charge by some members of the U.S. Senate that the Office of Civil Rights' guidelines for eliminating bias in textbooks are an infringement of academic freedom. Both the OCR legal counsel and two law review articles on the issue report no infringement of first amendment rights by guidelines for bias-free textbooks.

David Sadker argued that considerable funds would be necessary to retrain teachers on sex-equity issues. About 200,000 teachers graduate each year, most whom know nothing about sex equity. To see what was being taught to teachers on this topic, Myra Sadker and David Sadker selected the best-selling textbooks for teacher training in a number of areas, including, for example, foundations of education and educational psychology. About 30 books were analyzed line by line for the amount of space devoted to sexism and sex equity and for the quality of the discussion.

Myra Sadker continued that none of the textbooks devoted more than a tiny amount of space to sexism or sex equity, and many did not even mention the topic. The "best" textbook had a discussion of several pages.

Discussion

Linda Waite pointed out that decisions must be made on exactly what goals are desired in attempting to introduce sex equity into teaching materials. If the goal is elimination of sex stereotyping for its own sake, then we merely have to establish guidelines, goals, and timetables and monitor these materials to evaluate progress. But there is no legal mandate under title IX to deal with textbooks. In fact, these were specifically excluded from consideration.

Alternative goals of eliminating gender bias in teaching materials might include: (1) widening the range of career and life options perceived by students of both sexes, (2) increasing the acceptance of women in nontraditional jobs and thereby reducing the antagonism directed at women who are in such positions, and ultimately (3) increasing participation of women in nontraditional jobs.

Unfortunately, we know almost nothing about whether books, other teaching materials, or counselors have any impact on any of the outcomes listed above. Jeana Wirtenberg's study uncovered some research on reaction to ethnic groups and changes in this reaction from reading materials in classrooms. Only short-run effects were found. No research on sex bias and the effect of bias-free textbooks has been done. The reports to this conference on vocational education suggest very few changes in enrollments of female students in nontraditional curricula associated with any intervention.

Waite concluded that the tenuous association between texts, teaching materials, and counselors and the movement of young women into nontraditional occupations, coupled with the generally biased or at best unenlightened state of all these currently, suggests that this is a very slow and uncertain means of achieving wage equity between males and females. She suggested that retraining women already in the labor force to move into nontraditional jobs was expensive, disruptive, and would also be a lengthy process. Waite suggested consideration of equal pay for equal worth as the quickest, most direct route toward wage equity between the sexes. Unfortunately, this suggested solution dodges the issue of what primary and secondary schools can do to promote sex equity and ultimately to increase the proportion of women in nontraditional jobs.

Louise Vetter summarized an article in the American Psychologist, January 1979, in which a female faculty member reported an experience with a college class. She used the generic "she" in all lectures and used examples of women, views of women, etc. A substantial shift in the orientation of the class as a result was reported.

Jacquelynne Parsons suggested a number of steps that primary and secondary schools could take to increase women's success in nontraditional jobs. First, skills for dealing with discrimination could be taught to female students. Second, students could be taught about the concept of equal pay for equal worth so that they could evaluate it for themselves and deal with it. Third, women's values should be respected even when these differ from men's, but innovative ways of integrating these values with nontraditional jobs could be suggested.

Views of Appropriate Roles of Women: Session Two[3]

The purpose of this session was to suggest Federal policies related to education that could eliminate sex differences in occupational choice and labor market participation. Linking sex inequity in the labor force to sex inequities in classroom interactions and role models in schools is a difficult undertaking, particularly since most research on these topics has been conducted on elementary school classroom--at an age long before vocational choices are made This panel, however, attempted to forge such a link through evidence on the effects of sex differences in teacher-student interactions, peer interactions and role models on a variety of job-related student outcomes.

Underlying the three presentations was the assumption that sex equity of outcome was the desired goal to be attained. Although title IX was enacted to guarantee sex equity of treatment, from the panel and following discussion, it became clear that equality of treatment--while a desirable end in itself--was seen as less central than equality of achievement, job selection, earnings, and other schooling outcomes. Outcome equity, in addition to (and if necessary instead of) process equity, was identified as the central concern.

How both outcome and process equities are to be achieved through Federal policies directed at teacher-student interactions, informal interactions, and role models is far from obvious. The panelists and discussants identified some ongoing activities directed to this end.

Sex Equity in Teacher-Student Interaction

The opening presentation by Barbara Richardson and Susan Klein reviewed research related to sex differences in teacher-student interaction and then described Federal efforts to promote sex equity in classrooms. Richardson opened by posing two questions: (1) How are female secondary students treated differently from male secondary students? (2) How do these differences in treatment have an effect on subsequent outcomes?

The research on achievement motivation in elementary schools that Richardson reviewed suggested that teachers frequently treat boys and girls differently. She noted that interventions designed to correct the sex differences in teacher-student interaction needed to first sensitize teachers to their own behavior and unconscious beliefs. A second point was that the peer group influence also needed to be counteracted, possibly through group infiltration and resocialization.

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3. This summary was written by Marlaine Lockheed.

Susan Klein focused on Federal policies and actions related to classroom interaction. Klein reported that no significant litigation regarding sex inequities in classroom interaction had been initiated under title IX, primarily because of the difficulty in documenting the consequences of this type of inequity. It had, however, ensured sex equity in access to a variety of educational programs. Klein also identified other Federal activities related to sex equity in the classroom, including legislation such as the Vocational Education Amendments, title IV of the Civil Rights Act, and the Women's Educational Equity Act. Most of these Federal efforts have been directed at eliminating sex stereotypes from the content of the curriculum and correcting sex inequity in classroom interaction.

Informal Barriers to Nontraditional Careers

Rebecca Lubetkin discussed the informal processes that train boys and girls to assume separate roles in society and to accept these roles. In particular, she noted that high school girls who sought nontraditional training were discouraged by parents, counselors, teachers, friends, and even by the high school schedule. Those people who give the discouraging advice firmly believe it to be in the girls' best interest.

Lubetkin noted that these informal barriers are as effective as formal barriers, citing New Jersey data on high school enrollments in secretarial courses (76 percent female) versus pipefitting courses (3 percent female). She pointed out that the informal barriers go into effect only after a girl initiates a nontraditional action. She drew heavily on her testimony on February 1, 1979, before the Senate Committee on Labor and Human Resources in presenting examples.

Since it is not possible to legislate everyday behavior, Lubetkin argued that educators' awareness of the consequences of informal barriers must be raised through mandated training programs while simultaneously requiring that curriculum materials be bias free. Lubetkin argued that these approaches are best handled by the States, and the Federal Government's role should be to provide incentives for the enactment of State laws.

The Effects of Role Models in Schools

Carol Shakeshaft reviewed the literature on the effects of role models on children's development, pointing out that as early as 1846 Catherine Beecher argued that women should go into teaching because women's qualities were better suited than men's for training citizens. Research evidence from post-secondary institutions shows that the numbers and the distribution of women faculty are positively related to the girls' career aspirations and diversity of career choices.

Since women are poorly represented at administrative levels in public education, girls see few role models. Currently, the situation is exacerbated by the fact that few, if any, States require teachers to take a course on sex-role stereotyping for certification, and no States require courses on sex-role stereotyping for certifying administrators. Shakeshaft recommended that policies be implemented to provide female teachers as role models in predominantly male fields.

Discussion

Following the panel presentation, Lockheed, as discussant, raised the issue of equality of treatment versus equality of outcomes. She agreed that awareness courses, role models, and curriculum changes are important for providing a sex-equitable learning environment. However, a policy demanding the differential treatment of men and women and boys and girls may be required to achieve equity of outcomes.

Lockheed cited her research on sex inequity of peer interaction as documenting the need for differential treatment, particularly in the correction of already established patterns of inequity. Treated similarly, mixed-sex work groups show boys to be more active and influential than girls, and to be perceived as leaders more often than girls. A substantial intervention that gave the boys and girls different experiences was required to correct male dominance in mixed-sex work groups. Lockheed then noted that one form of treatment may be needed to enhance the social or interpersonal skills of boys, while another--quite different--treatment may be needed to enhance the task orientation/leadership skills of girls. Beyond that, Lockheed noted that changing interpersonal situations requires change on the part of all parties concerned. Girls must learn to accept boys with social sensitivity and boys must learn to accept forceful girls. A compensatory model rather than an equal treatment model was suggested for secondary education.

Since title IX more or less explicitly calls for an equal treatment model, it may not be the perfect vehicle for implementing a compensatory model. Lockheed summarized that the recommendations being made by the technical experts at this meeting may be in conflict with an equal treatment model.

In the general discussion following the panel presentation, several other participants made comments. Klein agreed with Lockheed, but noted that even though the main thrust of title IX is for the the equal treatment of males and females in educational settings, the language of the legislation, by focusing on "rights, privileges, advantages and opportunities," can be interpreted to refer to the equity of outcomes. The legislation seems to allow for sex differences in treatment if sex equity of outcomes is achieved. Verheyden-Hilliard agreed that title IX

focused on equal opportunity and should be interpreted to permit differential treatment in order to reach equal opportunity. That is, affirmative steps are permitted in order to allow a "catch up." Verheyden-Hilliard also noted that equality of treatment had not yet occurred.

Wolf addressed the Shakeshaft paper citing research on how people obtain power to argue that the way to increase women's participation in administration was not to encourage more women to enter teaching. She commented that structural barriers had to be lowered. Shakeshaft responded by clarifying that she did not mean to imply that moving women into teaching was a way to get them into administration. She agreed with Wolf that structural barriers need to be removed but stressed that she was not in favor of actions that devalued women's jobs and hence discouraged everyone from them. Men need to be encouraged to enter women's jobs as well as women encouraged to enter men's jobs. Verheyden-Hilliard noted that research suggests that women who enter teaching are more traditional and "feminine" and they may not be good role models for girls.

Summary

This session focused on sex inequities in classroom interaction, informal counseling, and role models--areas difficult to legislate. One central goal emerged: to achieve a situation in which differences in educational and vocational outcomes are no longer apparent. Two conflicting types of procedures were suggested to attain this goal:

Treat the sexes equally

Treat the sexes differently

In general, States, rather than the Federal Government, were seen as the appropriate location for education-related policy, although Federal funds might be used to encourage or facilitate State action.

Federal funds could be used as an incentive in the following ways: (1) withdrawing Federal funding of those not in compliance with title IX; (2) providing Federal support for monitoring sex equity of outcomes; (3) providing Federal support for State-mandated in-service training for all school personnel; (4) providing Federal support for research on the determinants of sex equity; (5) providing Federal support for incentive systems related to hiring equity.

Other actions that could be taken, possibly assisted by Federal aid, include: (1) requiring courses on sex equity as part of teacher or administrative certification; (2) requiring schools of education to include courses on sex equity for

certification; (3) requiring more uniform standards--particularly in terms of mathematics--for high school graduation.

Views of Appropriate Roles of Women: Math and Science[4]

Susan Chipman pointed out that interest seems to be the most critical determinant of high school students' decision to enroll in advanced math courses and whether, in fact, the failure to enroll in advanced math courses was a uniquely female problem. Based on comparisons of the percentages of women enrolling in and obtaining degrees in mathematics, she concluded that women were not selecting themselves out of math studies in grossly disproportionate numbers. In general, very many students go on into the advanced study of math and of those that do between 30 and 40 percent are women.

Chipman argued that it should not be concluded that women are underrepresented in various occupations because they lack education in mathematics. She said there is probably more truth to the reverse--they have not studied quite so much math because they have not expected to go into math-related occupations.

Lynn Fox disagreed with Chipman and argued that there should also be concern about the majority of students who are not potential college math majors. Girls generally do not believe they need math for their future goals, but boys do. Hence, girls take less math. Fox speculated that preparation in math may not be required for an entry-level job, but may be important for upward mobility.

Fox summarized her findings on the reluctance of gifted female students to enroll in special math programs and to pursue the study of math. More importantly, she pointed out the reluctance of girls in general to go into math-related careers such as engineering and the sciences. Thus, while some women may opt for a career in theoretical mathematics, a disproportionate number are not considering and pursuing more applied math-related careers. Fox listed as the critical mediators of this underparticipation the following four factors: low self-confidence in one's math abilities, lack of information regarding both the possibilities of combining a family with a scientific career and the usefulness of math courses for a variety of possible future career goals, stereotyping of math as a male domain, and the lack of good role models both at home and in school.

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4. This summary was written by Jacquelynne Parsons.

Paula Quick Hall reviewed the statistics on the numbers of minorities continuing in math and science courses and planning careers in related fields. She concluded that blacks are even more likely to drop math than are white females. She felt that special programs should be developed for minority children and reviewed several that had proved quite successful in increasing the involvement of minority high school students. These programs shared the following features: talented children were identified and actively encouraged to consider careers and additional training in science and math, role models were made available to demonstrate the feasibility of such careers and to discuss the details of such careers with the students, and activities were developed to increase interest in math and science courses.

Discussion

Jacquelynne Parsons responded to the three presentors by summarizing the main points and pointing out the elements that might offer the best hope for intervention. She stressed the need to consider the meaning of the careers to the students themselves. Teachers, counselors, and role models need to address the concerns of female students with combining careers and families. Information is needed that makes it clear that married women with children can have scientific careers. Information is also needed regarding the necessity of preparing oneself for a career that can support both oneself and one's family. Boys have been getting that kind of socialization for a long time; girls have not. Parsons also stressed the need for schools to act as a positive force rather than a neutral force in the course of career selection. Teachers need to encourage high potential females to consider science careers, to reinforce girls' math performance and girls' math interest, to point out the importance of math for future careers, to discuss the relevance of math to everyday concerns and to use activities that will increase interest in math. Finally, Parsons pointed to the importance of teachers working with parents in encouraging their daughters to have confidence in their math abilities and to consider seriously science careers. Many parents may not be aware of their daughters' potential. Teachers can provide this information quite easily in parent-teacher conferences.

Sex Equity in Education: Federal Policy Issues

The final session was devoted exclusively to policy issues. Short presentations were made by invited participants, followed by an open discussion.

Ruth Love, Superintendent of the Oakland Unified School District, and member of the National Commission for Employment Policy, expressed support for greater ties between those who do research and those who run the schools.

Love said there is a greater need for activation of legislation already in place than for new legislation to improve opportunities for girls in the schools. Specifically, she pointed to the failure to implement title IX of the Elementary and Secondary Education Act, which prohibits discrimination on the basis of sex in any program receiving or benefiting from Federal financial assistance. She suggested that enforcement of title IX could be strengthened by requiring evidence of sex equity as a condition for the receipt of Federal education funds, and pointed out that major sources of Federal education funds such as title I, compensatory education, do not contain any reference to sex equity.

In addition to the withholding of Federal funds, Love suggested two other ways to improve enforcement of title IX. These were to ask the States to require evidence of sex equity as a condition for the distribution of funds to local education authorities, and for the Department of Education to provide guidelines for local boards of education about the elements of sex-fair education.

Holly Knox, Director of the Project on Equal Education Rights of the NOW Legal Defense and Education Fund, said that title IX has had its greatest impact in the area of athletics, where considerable progress has been made. In two other important areas--vocational education and education administration--school districts have been moving slowly. Indeed, Knox argued, compliance is generally ritualistic and the momentum for enforcement of title IX has slipped away.

Knox suggested that there is a need to publicize title IX so that more complaints will be filed. She cited several shortcomings of the Federal enforcement effort. First, little Federal funding is made available for communities that support sex equity activities. Second, the ruling that title IX does not apply to employment of teachers and administrators in the schools hampers progress in these areas. Third, the Office for Civil Rights lacks a coherent strategy for enforcement of title IX.

Leslie Wolfe, Director of the Women's Educational Equity Act Program (WEEAP), explained that Congress has enacted a three-tiered strategy to deal with sexism in education. The first tier is title IX, a civil rights statute. The second is WEEAP. The third strategy, exemplified by the Vocational Education Act as amended in 1976, is "mainstreaming," or weaving requirements for sex equity into major education acts.

Wolfe made several suggestions for progress toward sex equity in education. First, she suggested that provisions should be made in the statutes themselves, not simply in the regulations, for restricting funds to areas that do not implement title IX. Second, she supported the mainstreaming

model, and suggested that sex equity provisions be included in all major education acts. Third, she said that WEEAP could be more effective if additional funding was made available to support local compliance programs.

Clark Leming from the Office for Civil Rights (OCR) pointed out that the number of title IX complaints received by OCR concerning vocational education have been limited. He suggested that because OCR tends to be reactive and not proactive, greater activity at OCR regarding title IX enforcement would be forthcoming if more complaints were made.

Shirley McCune, Associate Commissioner of the Equal Educational Opportunity Program, supported the suggestions made by Love and Wolfe that effective enforcement require a credible threat to withhold funds. She pointed to provisions of the Emergency School Aid Act for preaward review as a condition for the release of funds as a way to implement real financial incentives. McCune also pointed to the need for publicity so that more complaints would be filed.

ENROLLMENT AND STAFFING PATTERNS IN VOCATIONAL EDUCATION

By

L. R. Harrison, P. R. Dahl,
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This is an excerpt from Primary Data of the Vocational Education Equity Study, Final Report, Volume I, by L. R. Harrison, P. R. Dahl, M. F. Shaycoft, and B. J. Parks, American Institutes for Research, Palo Alto, California, April 1979, pages 104-149 and 236-237. This study was performed under U.S. Office of Education Contract No. 300-77-0318. Points of view or opinions do not necessarily represent U.S. Office of Education position or policy.

ENROLLMENT AND STAFFING PATTERNS IN VOCATIONAL EDUCATION

Enrollment and staffing patterns in vocational education will be examined by first reviewing background information gathered in previous research, then by examining in detail the patterns revealed in the present study. The following topics will be discussed:

- o Background Data from Previous Research.
- o The New Data: Enrollment Patterns in Vocational Programs in 1978.
- o Staffing Patterns at the School Level.

The second and third topics present data collected during the Vocational Education Equity Study. In addition to simply reporting numbers, the discussion under each topic also explores the background and characteristics of traditional and nontraditional staff and students. Attention is also given under these topics to the relationship between activities undertaken to lessen inequities and observed staffing and enrollment patterns.

Background Data From Previous Research

Two kinds of background information are of interest: (1) data on enrollment and staffing patterns in vocational education; and (2) data on the racial makeup of the United States.[1] The first provides a reference point for observing any changes that may have occurred in vocational education over the last several years. The second allows the comparisons of the representation of members of various racial groups in vocational education with their representation in the population as a whole.

Enrollment and Staffing Patterns in Vocational Education

Data from two sources are available: information collected by the Office of Civil Rights (OCR) in a 1974 survey of "area vocational schools;" and enrollment figures gathered by the Bureau of Occupational and Adult Education (BOAE) in 1972, 1975, and 1976.

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1. "Race" and "ethnic" group will be used interchangeably throughout this report. The groups intended by either term are: Whites not of Hispanic origin; blacks not of Hispanic origin; Hispanics; Asians and Pacific Islanders; American Indians and Native Alaskans. Exceptions to this grouping, sometimes necessitated by alternate groupings in existing data, will be clearly indicated.

BOAE Data

Table C.1 shows enrollment figures for fiscal years 1972, 1975, and 1976.[2] While interpretation is somewhat complicated by irregular reporting procedures used by several States (see footnotes on the table), the following emerge from a review of the table:

- Three occupational areas--health, home economics, and business and office--had upwards of 75 percent female enrollment for fiscal year 1972. Three other occupational areas--technical, trade and industrial, and agriculture--had more than 88 percent male enrollment that same year. Using fiscal year 1972 as a base, these will be referred to, respectively, as "traditionally female" and "traditionally male" occupational areas for the balance of this report. The seventh occupational area--distributive education--was 45.3 percent female in fiscal year 1972 and will be referred to as "traditionally mixed."

- Within each occupational area, there are occupations which, on the basis of the fiscal year 1972 data, deviate from the characterization as traditionally male, female, or mixed that applies to the area as a whole. Enrollment in these occupations, as well as those that conform to the overall characterization are listed in Table C.1. A list of occupations within each occupational area classified as traditionally male, female, or mixed is given in Appendix A2.

- The number of men in each of the traditionally female occupational areas increased by about 15 percent of the total enrollment between 1972 and 1976. Increases occurred both in the traditionally female and traditionally mixed occupations. In health, the increase in male enrollment was greater in the traditionally mixed than in the traditionally female occupations; in home economics and in business and office, the situation was reversed.

- The number of women enrolled in the technical and in the trade and industrial occupational areas declined

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2. Data for 1975 are not discussed in detail because of the difficulties presented by the number of states not reporting enrollment by sex. The percentage of male enrollment, based on the data available, was greater than in either 1972 or 1976 for each occupational area except agriculture. This was also the most typical state for traditionally male, female or mixed occupations within the occupational areas.

Table C. 1[a]

Enrollment in Classes Training Students for Traditionally Male, Traditionally Female, and Mixed Occupations in each of the Seven Major Occupational Areas

	Fiscal Year 1972			Fiscal Year 1975[b]			Fiscal Year 1976[c]		
	Total	Men %	Women %	Total	Men %	Women %	Total	Men %	Women %
Health[d]									
Traditionally Female	250,131	8.0	92.0	421,700	32.2	67.8	445,156	19.5	80.5
Mixed	86,521	35.1	64.9	195,016	59.9	40.1	239,748	50.5	49.5
TOTAL	336,652	15.3	84.7	616,716	40.9	59.1	684,904	30.4	69.6
Home Economics[d]									
Traditionally Female	3,169,646	6.9	93.1	3,393,888	7.5	92.5	3,655,448	23.2	76.8
Mixed	276,052	25.3	74.7	352,652	44.8	55.2	330,883	30.3	69.7
TOTAL	3,445,698	8.4	91.6	3,746,540	30.6	69.4	3,986,331	23.8	76.2
Business and Office[d]									
Traditionally Female	1,577,326	14.0	86.0	1,874,051	43.7	56.3	1,948,495	30.2	69.8
Mixed	775,446	43.2	56.8	1,077,014	62.4	37.6	1,166,197	53.1	46.9
TOTAL	2,352,772	23.6	76.4	2,951,065	50.5	49.5	3,114,692	38.8	61.2
Marketing and Distribution									
Traditionally Male	26,367	78.0	22.0	31,119	85.7	14.3	32,040	86.2	13.8
Traditionally Female	5,231	30.9	69.1	6,187	49.0	51.0	8,316	20.5	79.5
Mixed	608,825	53.9	46.1	835,918	65.0	35.0	860,248	58.7	41.3
TOTAL	640,423	54.7	45.3	873,224	65.6	34.4	900,604	59.3	40.7
Technical[e]									
Traditionally Male	318,948	91.4	8.6	429,702	92.5	7.3	466,124	91.7	8.3
Mixed	18,121	69.8	30.2	17,634	75.2	24.8	18,683	70.4	29.6
TOTAL	337,069	90.2	9.8	447,336	91.8	8.2	484,807	90.9	9.1
Trade and Industrial									
Traditionally Male	2,199,111	93.5	6.5	2,759,389	94 3	5.7	2,846,931	93.5	6.5
Traditionally Female	62,166	9.1	5 .9	94,111	35.3	64.7	89,819	23.9	76.1
Mixed	136,691	41.7	58.3	163,009	57.3	42.7	173,200	50.9	59.1
TOTAL	2,397,968	88.3	11.7	3,016,509	90.4	9.6	3,109,950	89.1	10.9
Agriculture[e]									
Traditionally Male	840,131	96.1	3.9	906,797	94.0	6.0	941,347	92.3	7.7
Mixed	56,329	73.1	26.9	105,798	75.6	24.4	118,370	68.0	32.0
TOTAL	896,460	94.6	5.4	1,012,595	92.1	7.9	1,059,717	89.9	10.4

[a]Source: Summary Data Vocational Education for Fiscal Years 1972, 1975, 1976. Bureau of Occupational and Adult Education, USOE, DHEW.

[b]Enrollment by sex not reported by Delaware, Florida, Illinois, Rhode Island, and South Carolina. California reported only total female enrollment

[c]California reported only total female enrollment.

[d]No traditionally male occupations within this area.

[e]No traditionally female occupations within this area.

slightly between 1972 and 1976 (less than 1 percent in either case); in agriculture, the decline was 5 percent of total enrollment. Similar results occurred in traditionally male occupations within these areas. Female enrollment in traditionally mixed occupations declined slightly in the technical area (by .7 percent of the total); in trade and industrial, the decline was 9.2 percent of the total enrollment in mixed occupations. Women increased their enrollment in mixed occupations in agriculture by 5.1 percent of the total. The only traditionally female occupations within traditionally male occupational areas are in trade and industrial, where female enrollment declined from 90.7 percent of the total to 76.1 percent. (Cosmetology is commonly placed under trade and industrial.)

- In marketing and distribution, men increased their enrollment from 78 percent to 86 percent in traditionally male occupations, and from 54 percent to 59 percent in mixed occupations. In traditionally female occupations, their representation declined from 31 percent to 20.5 percent.

In sum, the BOAE data show some movement of men into traditionally female occupational areas. With the exception of a slight movement within agriculture, they do not show the converse.

OCR Data

Tables C.2 and C.3 show enrollment and staffing data collected by the Office of Civil Rights in a 1974 survey of "area vocational schools."[3] These data, coming as they do from a year between 1972 and 1976, provide a useful check on the trends (or lack of them) observed in the BOAE data. The following observations emerge from a review of Table A.2:

- Women are clearly in the majority in each of the traditionally female occupational areas and, in two of three cases, the OCR data lie between the 1972 and 1976 BOAE data. The exception is in health where the OCR figure of 89.4 percent is higher than BOAE data for either year. For traditionally female occupations within each area, OCR figures show

3. Data presented in these tables represents a 50 percent sample of the OCR data. These data were analyzed especially for this study and are not, so far as we know, reported elsewhere. The OCR data include all types of schools included in the present study, except comprehensive high schools.

Table C. 2

Enrollment in Traditionally Male, Female, and Mixed Programs

Number of Students	Percentage by Sex					Percentage by Race					Percentage by Race and Sex									
	Men			Women		White	Black	Hispanic	American Indian	Asian	White Men	Black Men	Hispanic Men	American Indian Men	Asian Men	White Women	Black Women	Hispanic Women	American Indian Women	Asian Women
Health																				
Traditionally Female	37,035	2,299	6.2	34,736	93.8	84.7	11.3	2.6	0.5	0.8	5.1	0.7	0.3	0.0	0.1	79.6	10.6	2.3	0.5	0.7
Traditionally Mixed	6,518	2,335	35.8	4,183	64.2	76.7	18.2	3.5	0.5	1.1	27.0	6.2	1.7	0.3	0.6	49.7	12.0	1.8	0.2	0.6
Total	43,553	4,634	10.6	38,919	89.4	83.5	12.3	2.3	0.5	0.8	6.4	1.5	0.5	0.0	0.1	75.1	10.8	2.2	0.5	0.7
Home Economics																				
Traditionally Female	17,367	1,217	7.0	16,150	93.0	76.5	18.5	3.0	0.5	1.6	5.6	9.9	0.3	0.1	1.5	70.9	17.4	2.8	0.4	1.5
Traditionally Mixed	3,706	1,345	6.3	2,361	63.7	82.8	13.7	2.9	0.4	0.2	29.2	5.9	0.9	0.1	0.2	53.6	7.7	2.0	0.2	0.2
Total	21,073	2,562	12.2	18,511	87.8	77.6	17.5	3.1	0.5	1.4	9.8	1.8	0.4	0.1	0.1	67.9	15.7	2.7	0.4	1.2
Business & Office																				
Traditionally Female	36,119	2,684	7.4	33,435	92.6	79.1	15.3	3.7	0.8	1.1	5.5	1.4	0.4	0.1	0.1	73.6	13.8	3.3	0.8	1.0
Traditionally Mixed	39,056	21,000	54.7	18,056	45.3	79.9	15.1	3.5	0.5	0.9	44.0	7.7	2.2	0.3	0.6	35.9	7.5	1.3	0.2	0.4
Total	75,975	24,484	32.0	51,591	68.0	79.5	15.2	3.6	0.7	1.1	25.7	4.7	1.3	0.2	0.3	53.8	10.5	2.3	0.5	0.7
Distributive Education																				
Traditionally Male	1,148	643	56.0	505	44.0	91.5	2.9	3.8	0.4	1.3	51.3	1.4	2.4	0.3	0.6	40.2	1.6	1.5	0.1	0.7
Traditionally Female	20	5	25.0	15	75.0	95.0	5.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	70.0	5.0	0.0	0.0	0.0
Traditionally Mixed	22,206	13,235	59.6	8,971	40.4	84.1	9.6	3.9	0.6	1.8	50.0	0.3	2.6	0.3	1.1	34.2	4.0	1.3	5.6	0.7
Total	23,374	13,883	59.4	9,491	40.6	84.5	9.3	3.9	0.6	1.8	50.0	5.4	2.6	0.3	1.1	34.5	3.9	1.3	0.3	0.7
Technical																				
Traditionally Male	37,416	34,741	92.9	2,675	7.1	86.0	9.3	3.5	0.5	0.6	80.0	8.5	3.2	0.5	0.6	6.8	0.0	0.3	0.0	0.8
Traditionally Female	658	343	52.1	315	47.9	88.4	10.5	0.9	0.2	0.0	6.5	5.0	0.6	0.0	0.0	41.9	5.5	0.3	0.2	0.0
Traditionally Mixed	1,368	772	56.4	596	43.6	84.2	10.6	4.0	0.3	0.9	46.1	6.1	3.2	0.3	0.7	38.1	4.5	0.8	0.0	0.1
Total	39,442	35,856	23.0	3,586	9.1	86.0	9.4	3.5	0.5	0.6	78.3	8.4	3.2	0.5	0.6	7.7	1.0	0.3	0.2	0.0
Trade & Industrial																				
Traditionally Male	133,682	129,041	96.5	4,641	3.5	85.3	10.0	2.6	0.6	0.6	82.5	10.4	2.5	0.6	0.6	2.9	0.4	0.1	0.0	0.0
Traditionally Female	9,200	265	2.9	8,935	97.1	86.6	10.7	1.9	0.4	0.3	2.2	0.5	0.1	0.0	0.0	84.4	10.3	1.8	0.4	0.3
Mixed	7,893	3,759	47.6	4,134	52.4	77.7	18.7	2.5	0.5	0.5	35.5	10.2	1.4	0.3	0.2	42.2	8.5	1.8	0.2	0.3
Total	150,775	133,065	88.3	17,710	11.7	85.0	11.2	2.5	0.6	0.6	75.1	9.8	2.3	0.6	0.6	9.9	1.4	0.2	0.0	0.1
Agriculture																				
Traditionally Male	9,752	9,029	92.5	723	7.5	93.8	4.7	1.1	0.3	0.2	86.5	4.6	1.1	0.3	0.1	7.3	0.1	0.1	0.0	0.0
Traditionally Mixed	2,811	1,820	64.7	991	35.3	88.9	7.5	2.4	0.5	0.6	55.0	6.0	2.1	0.4	0.5	33.1	1.6	0.4	0.1	0.1
Total	12,573	10,849	86.3	1,724	13.7	95.9	3.3	1.4	0.3	0.3	82.0	4.9	1.3	0.3	0.2	13.1	0.4	0.1	0.0	0.0

Data presented here represent a 50% sample of the 1974 Office of Civil Rights survey of area vocational schools. Data were analyzed especially for the present study and are not, so far as we know, reported elsewhere.

Table C. 3

Numbe: of Teachers by Race and Sex (OCR Data)

	Number of Teachers	Percentages by Sex		Percentages by Race					Percentages by Race and Sex									
									White		Black		Hispanic		American Indian		Asian	
		Men	Women	White	Black	Hispanic	American Indian	Asian	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Health	2,564	11.2	88.8	92.2	5.1	0.8	0.4	1.5	10.4	81.8	0.6	4.6	0.2	0.6	0.1	0.3	0.1	1.4
Home Economics	603	15.6	84.4	85.9	9.8	0.2	0.5	3.6	14.1	71.8	1.5	8.3	0.0	0.2	0.0	0.5	0.0	3.6
Business & Office	2,487	46.2	53.7	91.2	5.5	0.8	0.2	2.3	43.9	47.3	1.0	4.6	0.5	0.3	0.1	0.1	0.8	1.4
Distributive Education	695	73.1	26.9	96.8	1.6	0.6	0.4	0.6	70.9	25.9	0.9	0.7	0.6	0.0	0.1	0.3	0.6	0.0
Technical	2,079	91.7	8.3	95.9	2.3	0.5	0.1	1.2	88.3	7.6	1.9	0.4	0.5	0.0	0.0	0.0	1.0	0.2
Trade & Industrial	6,221	90.9	9.1	92.5	5.3	0.5	0.2	1.4	84.7	7.8	4.3	1.0	0.4	0.0	0.2	0.0	1.3	0.2
Agriculture	520	95.0	5.0	95.0	3.1	1.2	0.4	0.4	90.4	4.6	2.7	0.4	1.2	0.0	0.4	0.0	0.4	0.0

Data presented here represent a 50% sample of the 1974 Office of Civil Rights survey of area vocational schools. Data were analyzed especially for the present study and are not, as far as we know, reported elsewhere.

a higher percentage of women than do any of the BOAE data, except that the 1972 BOAE figure in home economics is practically identical to the OCR figure; in each case, OCR data show female enrollment to be above 90 percent of the total. For traditionally mixed occupations, OCR figures show women to make up 64.2 percent of the enrollment in health, 63.7 percent in home economics, and 45.3 percent in business and office. Each of these is lower than the corresponding 1972 BOAE figure, but there is no consistent relationship to the 1976 BOAE figures--the OCR health figure is higher, the other two are lower.

- Men are clearly in the majority in traditionally male occupational areas, from a high of 90.1 percent in technical, to a "low" of 86.3 percent in agriculture, with trade and industrial in between at 88.3 percent. Each of these lies within 4 percentage points of the corresponding 1976 BOAE figure. Male dominance is most pronounced in traditionally male occupations within each area: 92.9 percent in technical, 96.5 percent in trade and industrial, and 92.5 percent in agriculture. The first two figures are higher than the BOAE figures for either 1972 or 1976, while the last lies between the BOAE data for those years.

  Women are substantially more represented in traditionally mixed occupations in the technical area according to the OCR than to the BOAE data--43.6 percent as against 30.2 percent and 29.6 percent for 1972 and 1976, respectively. Figures for trade and industrial, 52.4 percent, and for agriculture, 35.3 percent are within 3 1/2 percentage points of the 1976 BOAE data. Women make up 97.1 percent of the enrollment in traditionally female trade and industrial occupations, according to the OCR data, which is higher than either the 1972 or the 1976 BOAE figures; women also make up 47.9 percent of the enrollment in traditionally female technical occupations according to the OCR data.

- Distributive education enrollment is 40.6 percent female, according to OCR, a figure essentially identical to the BOAE 1976 finding. The figures for traditionally male, female, and mixed occupations within this area are, respectively, 44.0 percent, 75.0 percent and 40.4 percent. The last two are within five percentage points of the corresponding BOAE 1976 data, while the first is much higher than the 13.8 percent reported by BOAE for that year (1972 BOAE data showed 22.0 percent women in this category).

In sum, there are no striking inconsistencies between the OCR and BOAE data with respect to dominance of any occupational

area by persons of one sex or the other. Figures C.1 and C.2[4] show the relationship between the data from these two sources. A trend appears in Figure C.2. Female enrollment in traditionally female occupations appears to be converging at between 68 percent and 80 percent of the total, while in traditionally mixed areas it is converging to between 30 percent and 50 percent of the total. No noteworthy changes are to be seen in the traditionally male occupations, however, with these occupations generally remaining less than 10 percent female.

OCR Teacher Data

Table C.3 shows the makeup of teaching staff as revealed by the OCR study. Over 90 percent of the teachers in traditionally male occupational areas are men. Men also make up over 70 percent of the teaching staff in marketing and distribution--a traditionally mixed occupational area. Over 80 percent of the teachers in home economics and health are women, as are about 55 percent of the business and office teachers. Thus, men are much more commonly found teaching in traditionally female occupational areas than are women in traditionally male areas.

Census Data

Table C.4 shows the racial makeup of the United States according to the 1970 census. While the racial categories used in the census were not the same as those used in the present study, certain of the categories are sufficiently similar to provide useful comparison data. Specifically, the estimates of "Black," "American Indian or Native Alaskan," and "Asian or Pacific Islander" are probably quite close to what would have been obtained had our categories been used.[5] This table will be referred to frequently to compare the representation of various minority groups in vocational education with their representation in the population. For

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4. Comparing data from different studies is always a somewhat dubious enterprise, as variations observed may as well reflect differences in methods of sampling and measurement as differences in that being examined. On the other hand, if a trend is pervasive, and truly characteristic, it should be robust enough to appear when any one of several reasonable assessment methods is used. In any event, we will present the data and discuss what they appear to show.

5. The 1970 census question on race/ethnicity provided the following options: White, Negro or Black, American Indian, Japanese, Chinese, Filipino, Hawaiian, Korean, and Other, except in Alaska, where Aleut and Eskimo were substituted for Hawaiian and Korean. The most serious problem

Figure C. 1

Percentage of Women in Each Occupational Area

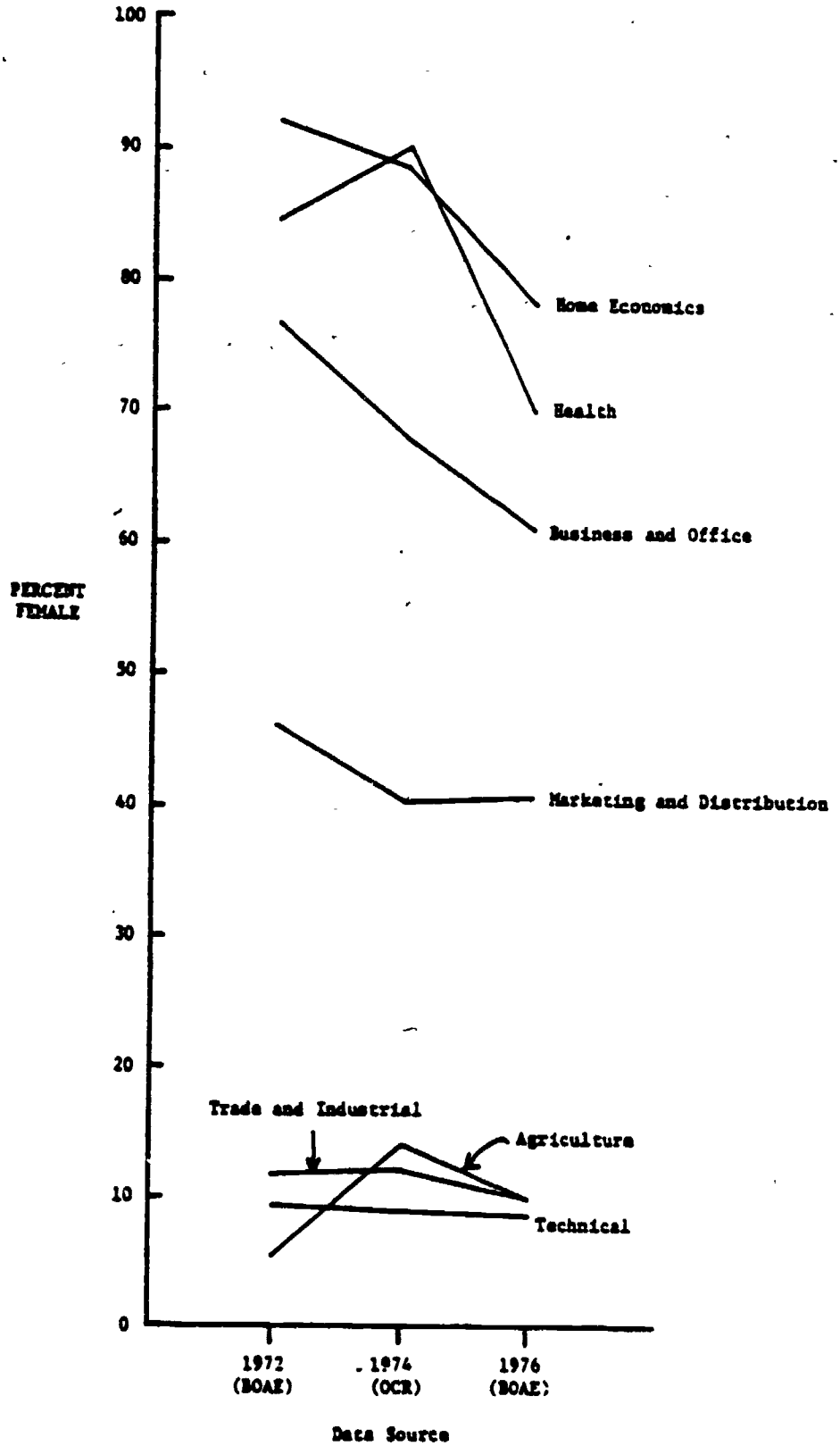

Figure C. 2

Percentage of Women in Traditionally Male, Female, and Mixed Occupational Areas

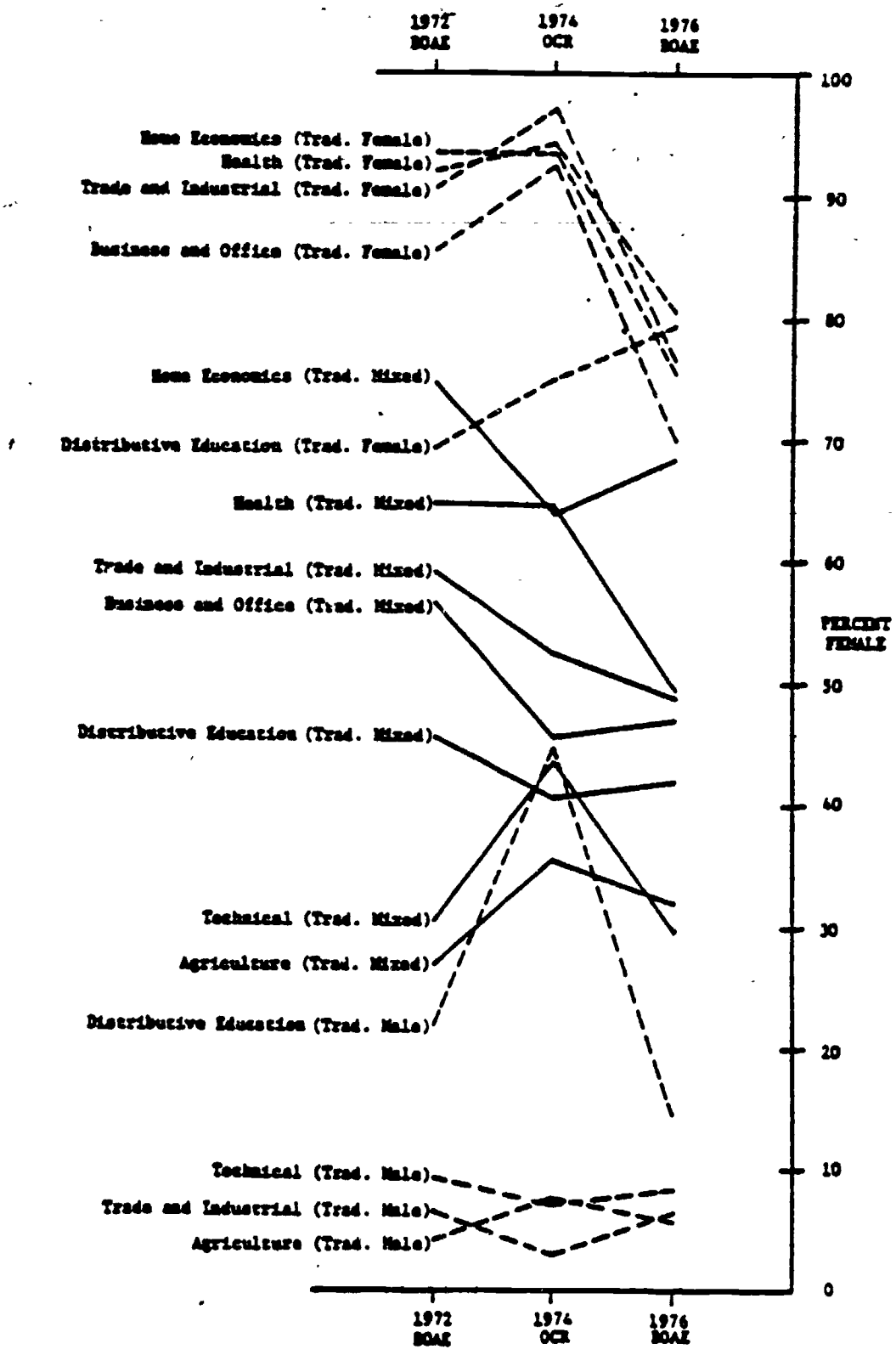

Table C.4

Racial Makeup of the United States - 1970 Census[a]

	TOTAL	WHITE	BLACK[b]	AMERICAN INDIAN[c]	ASIAN AND PACIFIC ISLANDER[d]	OTHER
United States	203,211,926	87.5%	11.5%	.4%	.7%	.3%
REGIONS						
North East	49,040,703	90.4%	8.9%	.1%	.3%	.3%
North Central	56,571,663	91.3%	8.1%	.3%	.2%	.1%
South	62,795,367	80.3%	19.1%	.3%	.2%	.1%
West	34,804,193	90.2%	4.9%	.1%	2.8%	1.0%

[a]Source: Census of Population: 1970. Volume I, Characteristics of the Population

[b]"Negro" in the census report.

[c]Includes those who indicated "American Indian" or who specified a specific Tribal affiliation.

[d]Includes Japanese, Chinese, and Filipinos.

example, comparison of this table with Tables C.2 and C.3 reveals that, while blacks are commonly represented among students in excess of their proportion in the population, their representation among teachers is generally less than in the population.

As explained in the footnote, the census data provide no good estimate of the Hispanic population. For purposes of comparisons such as those described above, a figure of 5.1 percent will be used. This is based on data contained in the 1976 Statistical Abstract of the United States (U.S. Department of Commerce, 1976).

The New Data: Enrollment Patterns in Vocational Education in 1978

Under this topic, we will present information about enrollment based on the findings of the present study. In so doing, we will discuss not only the enrollment figures per se, but also some of the characteristics of traditional and nontraditional students and how they came to be enrolled in their present programs.

Enrollment Figures

Tables C.5 to C.7 present enrollment estimates based on the sample of students interviewed in the present study.[6] Figures C.3 and C.4 put these data in perspective by showing

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for comparison with the categories used in the present study is the absence of a "Hispanic" category. While many Hispanics may have indicated "Other," the greater number probably specified either "White," or, less commonly, "Black." Thus, the totals for "Blacks" and "Whites" are probably somewhat inflated, although the greater overestimate would almost certainly be in the latter category. The total for "Asians or Pacific Islanders" is probably something of an underestimate, as the total includes only Chinese, Japanese, and Filipinos, but not persons whose ancestors came from other Pacific Islands, or from portions of continental Asia other than China.

6. Procedures for arriving at these estimates on the basis of the sample are discussed in Appendix C.1. In outline, estimates were developed by assigning each student a "weight" based on the proportion of the population that student represented. For example, a student selected from a school with a large enrollment would "represent" more students than a student from a small school and would, therefore, have larger weight, other factors being equal.

Table C. 5

Estimated Enrollment in Each Occupational Area by Race and Sex

	Total by Sex				Total by Race					Total by Race and Sex									
	Men		Women		White	Black	Hispanic	Asian/ Pacific Islander	American Indian/ Native Alaskan	White Men	Black Men	Hispanic Men	Asian/ Pacific Islander Men	American Indian/ Native Alaskan Men	White Women	Black Women	Hispanic Women	Asian/ Pacific Islander Women	American Indian/ Native Alaskan Women
	#	%	#	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Overall																			
Trad. Male	1,322,998	92.2	111,952	7.8	86.1	13.0	4.4	.9	.7	73.6	12.0	4.2	.8	.7	6.5	1.0	.2	.05	.02
Trad. Female	247,671	10.9	1,202,826	89.1	68.9	20.5	7.0	1.9	1.2	7.3	2.5	.8	.2	.3	61.6	17.8	7.0	1.8	.9
Trad. Mixed	264,824	63.1	482,487	56.9	76.9	12.5	6.2	3.5	.7	31.9	5.7	4.4	1.1	.04	45.0	7.0	1.9	2.4	.7
Health																			
Trad. Female	20,782	7.0	263,000	92.2	87.4	8.0	3.5	.1	.1	7.3	.2	.3	0.0	0.0	80.1	8.7	3.2	.1	.1
Trad. Mixed	7,870	15.6	42,523	84.4	90.2	8.0	1.0	0.0	0.0	13.0	1.0	0.0	0.0	0.0	76.3	7.0	1.0	0.0	0.0
Home Economics																			
Trad. Female	77,470	16.4	393,000	83.0	67.0	23.4	4.2	2.7	2.7	9.9	4.2	.1	.5	.3	57.1	19.3	2.7	2.3	2.4
Trad. Mixed	5,071	22.5	17,423	77.5	63.9	31.4	.6	4.1	0.0	0.1	12.0	.6	1.0	0.0	56.1	19.5	0.0	1.0	0.0
Business & Office																			
Trad. Female	47,486	8.7	498,681	91.5	69.6	19.7	23.0	2.4	.5	5.5	2.5	.4	.05	.4	58.1	17.4	13.4	2.3	.06
Trad. Mixed	192,243	41.1	275,377	58.9	74.9	10.5	9.6	4.7	.3	28.3	5.2	7.0	.6	.01	46.6	5.4	2.6	4.1	.2
Marketing & Distribution																			
Trad. Male	1,290	100.0	0	0.0	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trad. Mixed	114,340	58.5	83,072	41.7	73.5	20.9	3.2	.5	2.0	47.4	8.9	1.7	.1	.1	36.1	12.0	1.5	.4	1.0
Technical																			
Trad. Male	250,701	88.2	33,600	11.8	88.2	10.9	.6	.2	0.0	76.7	10.7	.6	.2	0.0	11.5	.2	.004	.08	0.0
Trade & Industrial																			
Trad. Male	944,109	93.9	61,377	6.1	77.1	14.0	6.0	1.1	1.0	72.6	13.6	5.6	1.0	1.0	4.5	1.3	.2	.04	.02
Trad. Female	1,934	3.0	63,112	97.0	51.1	48.5	.2	.3	0.0	2.7	.5	0.0	0.0	0.0	48.5	48.3	.2	.3	0.0
Trad. Mixed	23,036	36.0	40,991	64.0	89.0	4.0	0.0	0.0	1.4	23.7	3.5	0.0	0.0	0.0	41.3	1.3	0.0	0.0	1.4
Agriculture																			
Trad. Male	126,983	88.2	16,920	11.8	84.0	12.0	1.1	.7	.6	74.1	11.9	.9	.6	.6	10.7	.0	.2	.06	0.0
Trad. Mixed	21,130	49.7	21,365	50.3	90.7	6.1	3.1	0.0	0.0	46.4	.0	2.5	0.0	0.0	44.3	5.3	.6	0.0	0.0

Data presented in this and all subsequent tables and figures were, unless a note to the contrary is made, collected as part of the present study.

Table C. 6

Estimates of Enrollments in Each Occupational Area by Region of the Country

	Total				North East		North Central		South		West	
	Men		Women		Men	Women	Men	Women	Men	Women	Men	Women
	N	%	N	%	%	%	%	%	%	%	%	%
Overall												
Traditionally Male	1,323,810	92.2	111,914	7.8	93.7	6.3	94.5	5.5	88.8	11.2	93.2	6.8
Traditionally Female	147,674	10.9	1,202,839	89.1	8.2	91.8	10.3	89.7	10.8	89.2	13.2	86.8
Traditionally Mixed	363,939	43.1	479,955	56.9	36.1	63.9	42.7	57.3	39.9	60.1	50.0	50.0
Health												
Traditionally Female	20,738	7.8	245,861	92.2	17.4	82.6	1.0	99.0	4.9	95.1	13.2	86.8
Traditionally Mixed	7,871	15.6	42,523	84.4	8.2	91.8	2.0	98.0	31.9	68.1	9.6	90.4
Home Economics												
Traditionally Female	77,471	16.4	395,811	83.6	4.8	95.2	14.3	85.7	17.7	82.3	21.7	78.3
Traditionally Mixed	5,071	22.5	17,433	77.5	13.0	87.0	24.7	75.3	32.9	67.1	.5	99.5
Business & Office												
Traditionally Female	47,484	8.7	498,688	91.3	8.2	91.8	9.8	90.2	10.7	89.3	6.6	93.4
Traditionally Mixed	192,247	41.1	275,578	58.9	31.8	68.2	45.3	54.7	38.3	69.7	49.6	50.4
Marketing & Distribution												
Traditionally Male	1,290	100.0	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
Traditionally Mixed	114,563	58.3	82,078	41.7	48.5	51.5	48.9	51.1	61.6	38.4	75.1	24.9
Technical												
Traditionally Male	250,782	88.2	33,609	11.8	80.7	19.3	98.0	2.0	88.9	11.1	85.7	14.3
Trade & Industrial												
Traditionally Male	994,115	93.9	61,376	6.1	96.0	4.0	93.6	6.4	90.5	9.5	96.5	3.5
Traditionally Female	1,934	3.0	63,279	97.0	0.0	100.0	8.1	91.9	1.7	98.3	0.0	0.0
Traditionally Mixed	23,037	36.0	40,989	64.0	98.1	1.9	31.8	68.2	22.3	77.7	41.0	59.0
Agriculture												
Traditionally Male	126,903	88.2	16,929	11.8	72.6	27.4	95.9	4.1	80.5	19.5	97.8	2.2
Traditionally Mixed	21,150	49.8	21,362	50.2	5.4	94.6	81.7	18.3	42.2	57.8	49.4	50.6

Table C. 7

Estimated Enrollment in Each Occupational Area

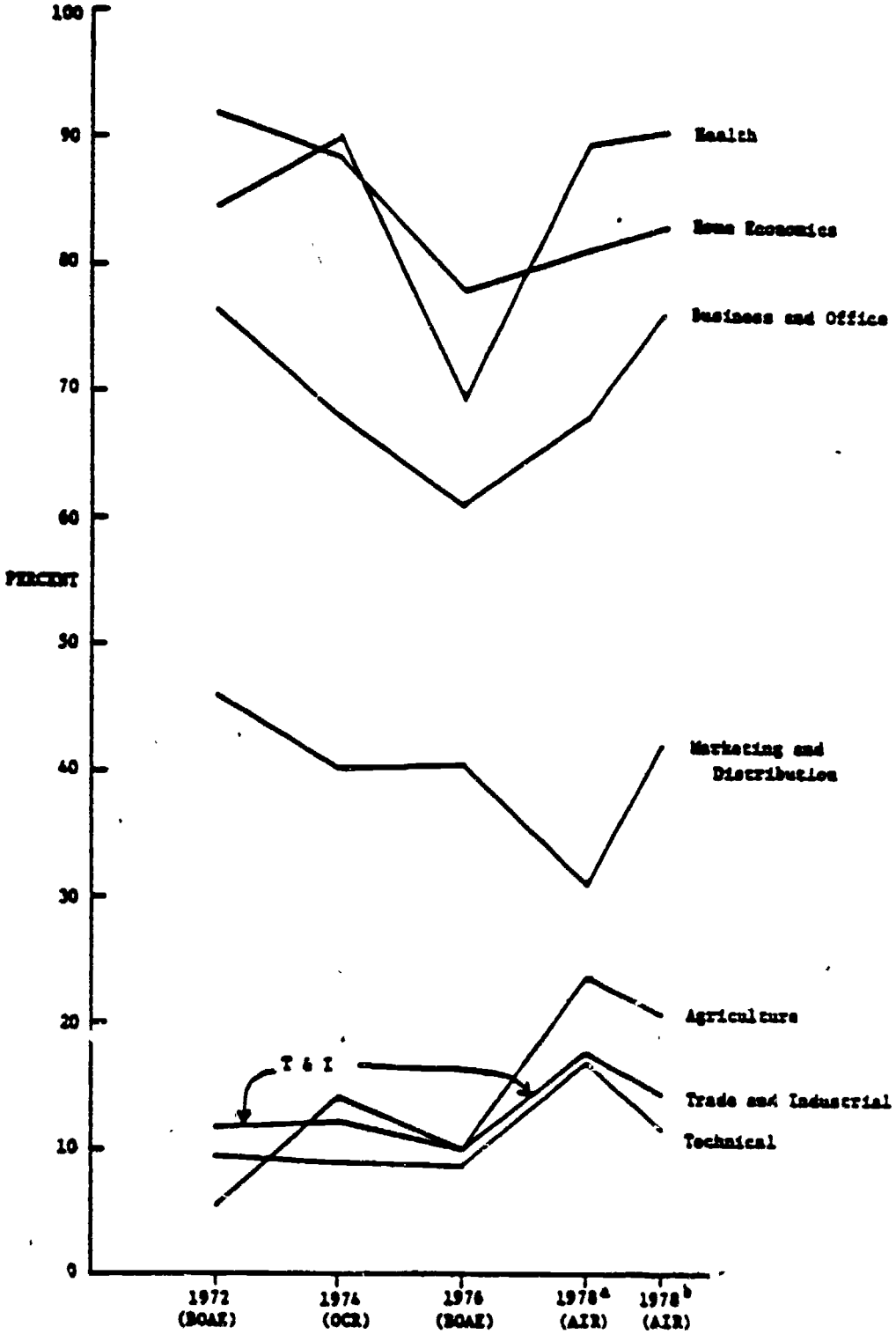
by Type of School

	Total				Vocational High School		Technical Institute		Vocational Center		Subtotal				Junior College		Subtotal				Comprehensive High School	
	Men		Women		Men	Women	Men	Women	Men	Women	Men		Women		Men	Women	Men		Women		Men	Women
	N	%	N	%	%	%	%	%	%	%	N	%	N	%	%	%	N	%	N	%	%	%
Overall																						
Traditionally Male	1,323,082	92.2	111,914	7.8	97.9	2.1	96.8	3.2	92.2	7.8	366,164	94.0	23,460	6.0	87.4	12.6	654,405	90.9	65,177	9.1	93.5	6.5
Traditionally Female	147,678	10.9	1,202,831	89.1	15.3	84.7	8.5	91.5	5.4	94.6	15,598	7.8	206,046	93.0	9.4	90.6	41,373	8.3	454,710	91.7	12.4	87.6
Traditionally Mixed	363,937	43.1	479,954	56.9	48.5	51.5	47.3	52.7	18.7	81.3	56,781	36.0	100,735	64.0	60.8	39.2	187,700	50.3	185,317	49.7	37.4	62.6
Health																						
Traditionally Female	28,783	7.8	345,861	92.2	7.1	92.9	1.5	98.5	4.5	95.5	1,633	2.8	56,370	97.2	10.2	89.8	19,504	8.4	213,973	91.6	4.0	96.0
Traditionally Mixed	7,072	15.6	42,522	84.4	0.0	100.0	1.1	98.9	8.2	91.8	718	4.8	14,313	95.2	41.2	58.8	7,378	23.7	23,799	76.3	2.6	97.4
																	26,900	10.2	237,800	89.8		
Home Economics																						
Traditionally Female	77,472	16.4	395,887	83.6	24.9	75.1	3.1	96.9	26.3	73.7	4,982	14.9	28,508	85.1	26.0	74.0	10,523	19.2	44,300	80.8	16.0	84.0
Traditionally Mixed	5,071	22.5	17,432	77.5	53.2	46.8	100.0	0.0	.9	99.1	217	8.3	2,413	91.7	18.9	81.1	485	12.0	3,561	88.8	24.8	75.2
																	11,000	18.7	47,900	81.3		
Business & Office																						
Traditionally Female	47,488	8.7	498,684	91.3	24.9	75.1	22.4	77.6	.1	99.9	7,152	9.3	69,455	90.7	2.9	97.1	9,411	6.1	144,526	93.9	9.7	90.3
Traditionally Mixed	192,248	41.1	275,576	58.9	52.7	47.3	51.6	48.4	20.8	79.2	36,263	42.6	48,833	57.4	54.8	45.2	113,373	50.2	112,468	49.8	32.6	67.4
																	122,784	32.3	256,994	67.7		
Marketing & Distribution																						
Traditionally Male	1,290	100.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	100.0	0.0	1,290	100.0	0	0.0	0.0	0.0
Traditionally Mixed	114,559	58.3	82,072	41.7	0.0	100.0	100.0	0.0	22.2	77.8	12,053	39.1	18,757	60.9	86.3	13.7	56,608	68.7	25,837	31.3	50.8	49.2
																	57,898	69.1	25,837	30.9		
Technical																						
Traditionally Male	258,703	88.2	33,609	11.8	96.4	3.6	97.4	2.6	90.0	10.0	63,921	95.4	3,051	4.6	77.5	22.5	166,940	83.5	33,031	16.5	99.3	.7
Trade & Industrial																						
Traditionally Male	944,113	93.9	61,375	6.1	98.2	1.8	96.2	3.8	93.1	6.9	300,305	94.3	18,257	5.7	93.9	6.1	472,859	94.1	29,467	5.9	93.7	6.3
Traditionally Female	1,935	3.0	63,279	97.0	0.0	0.0	3.4	96.6	3.4	96.6	1,831	3.4	51,705	96.6	33.5	66.5	1,935	3.6	51,911	96.4	0.0	100.0
Traditionally Mixed	23,037	36.0	40,991	64.0	100.0	0.0	0.0	100.0	34.9	65.1	719	4.7	14,564	95.3	61.4	38.6	3,045	16.0	16,029	84.0	44.5	55.5
																	477,039	83.0	97,407	17.0		
Agriculture																						
Traditionally Male	126,902	88.2	16,938	11.8	63.7	36.3	0.0	0.0	46.0	54.0	1,938	47.3	2,160	52.7	95.9	4.1	14,116	84.0	2,679	16.0	88.8	11.2
Traditionally Mixed	21,150	49.8	21,361	50.2	8.0	100.0	100.0	0.0	.9	99.1	6,811	78.6	1,855	21.4	0.0	100.0	6,811	65.3	3,623	34.7	44.7	55.3
																	20,927	76.9	6,302	23.1		

Figure C. 3

Percentage of Women in Each Occupational Area,

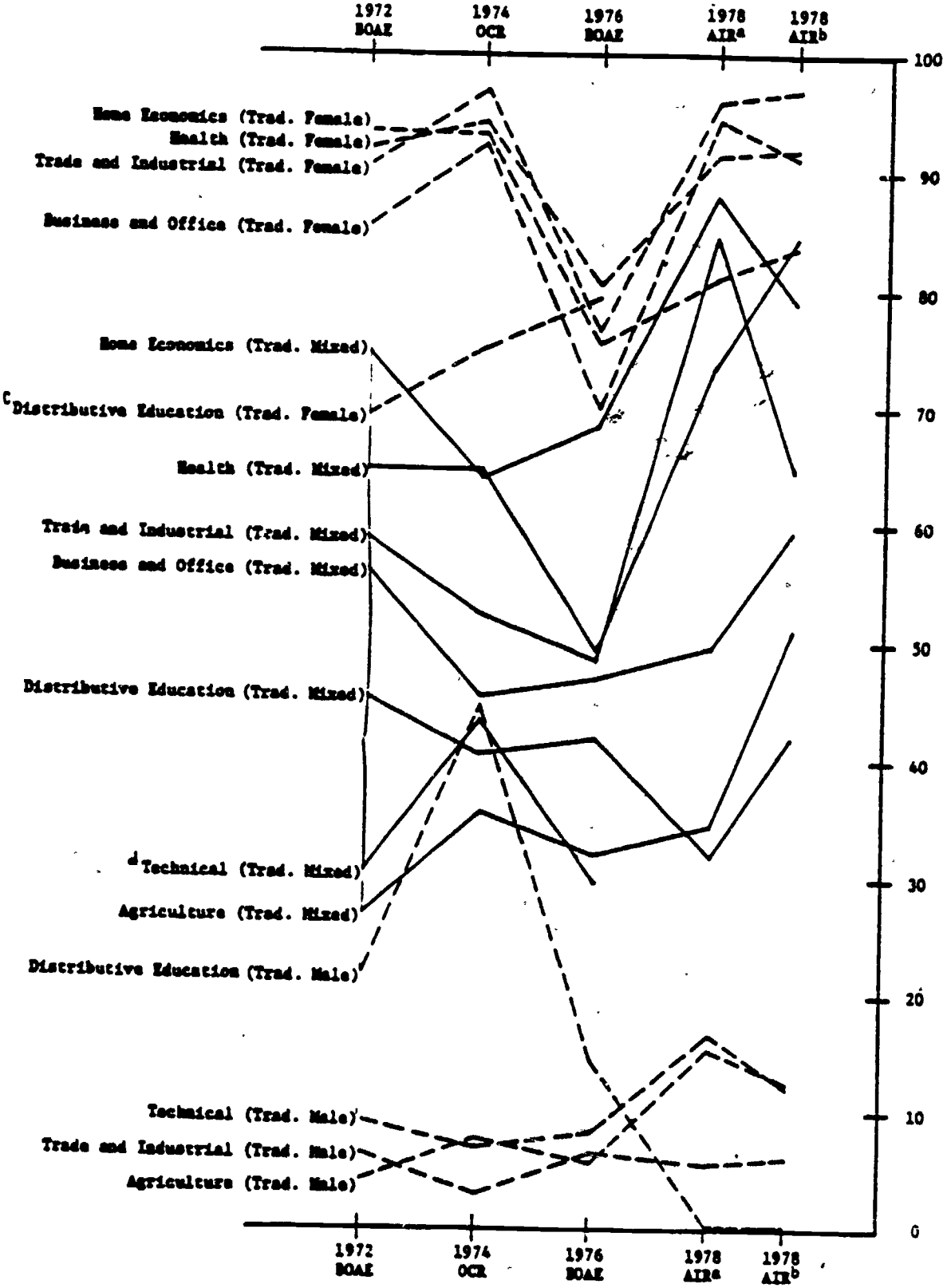
Including VEES Data



a - excluding comprehensive high schools
b - including comprehensive high schools

Figure C. 4

Percentage of Women in Traditionally Male, Female, and Mixed Occupational Areas, Including VEES Data



a - excluding comprehensive high schools
b - including comprehensive high schools
c - no students in traditionally female distributive education courses were identified in this study
d - no students in traditionally mixed technical occupations were interviewed in this study

them in comparison with the BOAE and OCR data. The following emerge from a review of these tables and figures:

- Women continue to predominate in each of the traditionally female occupational areas, with over 75 percent of the total in each of the three. Moreover, they constitute over 80 percent of the enrollment in traditionally female occupations within each area.

- Men continue to predominate in each of the traditionally male occupational areas, with over 75 percent of the enrollment in each of the three. Moreover, they constitute over 85 percent of the enrollment in traditionally male occupations within each area.

- Men are in the majority in distributive education, making up 58.5 percent of the enrollment.

- Except in marketing and distribution, women are in the majority in traditionally mixed occupations in each occupational area. Their greatest majorities are in health (84.4 percent) and home economics (77.5 percent).

- Some regional variations occur in these data, but in no instance is there striking deviation from traditional dominance in traditionally male or female occupations overall or within any occupational area. The greatest disparity is in traditionally male occupations in agriculture, where the percentage of men enrolled ranges from a low 72.6 percent in the North East to 97.8 percent in the West. In only one other instance--home economics in the West--does the percentage dip below 80 for the traditionally predominant sex.

- Some dramatic variations occur within occupational areas across various types of schools. The greatest is in traditionally male occupations in agriculture, where male enrollment varies from a high of 95.9 percent in junior and community colleges, to a low of 46.0 percent in vocational centers. The three next largest variations are in traditionally female occupations, as follows: in home economics, from 96.9 percent women in technical institutes to 73.7 percent women in vocational centers; in business and office, from 99.9 percent women in vocational centers, to 75.1 percent women in vocational high schools; and in trade and industrial, from 96.6 percent women in vocational centers to 66.5 percent women in junior/community colleges. Such variations buck the trend, however: in each type of school,

over 80 percent of those studying traditionally male occupations are men, while over 80 percent of those studying traditionally female occupations are women. A review of traditionally male and female occupations within each occupational area and type of school reveals that, in 22 of 34 instances, the traditional sex makes up over 90 percent of the enrollment; in three more instances, the figure is between 80 percent and 90 percent, and in six more it is above 70 percent.

- A review of Figures C.3 and C.4 does not show a continuation of the trends described in the discussion of the BOAE and OCR data.[7] First, the apparent downturn in the percentage of women in business, health, and home economics reversed, and the estimates of enrollment derived from the sample approximately match the 1972 BOAE data when all schools are included, and the OCR data when comprehensive high schools are excluded. Second, there is a slight upturn in the percentage of women in agriculture, trade and industrial and technical--to about 17 percent in trade and industrial and in technical, and to about 25 percent in agriculture when all schools are included. Each decreases a few percentage points when comprehensive high schools are excluded; for technical occupations this essentially wipes out the gain relative to the 1976 BOAE data.

  An examination of traditionally male, female and mixed occupations within each of the areas (Figure C.4) generally shows greater percentages of women in programs training students for traditionally female occupations than did the 1976 BOAE data. Women, according to these data have increased their participation in traditionally male programs in agriculture and technical occupations since 1976, but their participation in traditionally male programs in trade and industrial has remained steady.

- Overall, blacks make up about 16 percent of the vocational enrollment, compared with their population percentage of 11.1 percent. The corresponding figures for American Indians and Native Alaskans are .9 percent and .4 percent; for Asians and Pacific Islanders, the figures are .7 percent and 1.9

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7. Two data points are presented, one based on all schools visited, the other excluding comprehensive high schools. The exclusion of comprehensive high schools leaves a sample including only those kinds of schools surveyed by the Office of the Civil Rights.

percent. Hispanics make up 6.1 percent of the vocational school enrollment, which is higher than their 5.1 percent representation in the population as a whole. Taken together, minority students make up about 25 percent of the overall vocational enrollment. They are not, however, proportionately distributed among programs. Minority students make up less than 20 percent of the students in the occupational areas of health, technical and agriculture. They also make up less than 20 percent of the enrollment in traditionally mixed trade and industrial occupations and in traditionally male distributive education occupations. By contrast, minority students constitute more than 30 percent of the enrollment in home economics, and in traditionally female occupations in the business and office, and trade and industrial occupational areas.

In sum, these data show somewhat greater female enrollment in traditionally male occupations than do the OCR or BOAE data (approximately a 3 percent increase in technical areas and an 8 percent increase in agriculture). However, the proportion of men in traditionally female areas is less than shown by the other sets of data. (The exception being approximately a 10 percent increase in home economics.) In spite of some anomalies for a few types of schools in some occupational areas, these data reinforce previously existing data in showing overwhelmingly traditional enrollment patterns.

Characteristics of Traditional and Nontraditional Students

Tables C.9 and C.10, along with Figures C.5 and C.7, present data comparing traditional and nontraditional students on the following factors: age, fathers' and mothers' occupational level (as an index of socioeconomic status), plans after leaving school, marriage plans, and occupational preferences. These tables report unweighted data based on information given by students in the sample.

Student Age

As shown in Table C.8, nontraditional students are slightly older than traditional students when data are combined across all types of schools. This difference of about .7 years is significant at the .02 level; men differ by about a year, and women by about half a year, with

Table C. 8

Age of Traditional and Nontraditional Students

TYPE OF SCHOOL		Overall				Men				Women			
		Traditional	Nontraditional	t	p	Traditional	Nontraditional	t	p	Traditional	Nontraditional	t	p
All Schools	N	1818	463			995	209			823	254		
	$\bar{X}$	18.15	18.87	2.63	<.01	18.05	19.06	2.81	<.01	18.28	18.72	1.06	>.20
	S.D.	5.08	5.88			4.56	5.42			5.65	6.23		
Comprehensive High School	N	1160	264			603	136			557	128		
	$\bar{X}$	16.61	16.52	1.09	>.20	16.64	16.68	0.34	>.20	16.58	16.35	1.95	>.05
	S.D.	1.22	1.19			1.23	1.19			1.21	1.17		
Vocational High School	N	106	25			76	7			30	18		
	$\bar{X}$	16.76	16.16	1.79	>.05	16.83	16.86	0.05	>.20	16.60	15.89	2.04	<.05
	S.D.	1.57	1.18			1.71	0.90			1.16	1.18		
Vocational Center	N	316	82			185	24			127	58		
	$\bar{X}$	17.99	18.76	1.23	>.20	17.39	19.54	3.39	<.01	18.87	18.43	0.42	>.20
	S.D.	4.82	5.94			2.37	5.70			6.95	6.05		
Technical Institute	N	63	14			25	8			38	6		
	$\bar{X}$	25.84	24.43	0.54	>.50	27.12	23.75	0.95	>.50	25.00	25.33	0.08	>.50
	S.D.	9.33	6.03			9.19	7.13			9.45	4.68		
Junior/ Community College	N	173	78			102	34			71	44		
	$\bar{X}$	26.86	26.83	0.03	>.50	26.26	27.59	0.90	>.50	27.72	26.25	0.81	>.50
	S.D.	8.51	8.21			7.81	6.40			9.42	9.41		

Table C. 9

Socioeconomic Status of Traditional and Nontraditional Students

FATHER SOCIOECONOMIC STATUS		Overall					Men					Women				
		N	$\bar{X}$	S.D.	t	p	N	$\bar{X}$	S.D.	t	p	N	$\bar{X}$	S.D.	t	p
All Schools	Traditional	1454	3.09	1.14	1.04	>.2	810	3.10	1.12	0.10	>.5	644	3.07	1.16	1.47	>.1
	Nontraditional	352	3.16	1.12			163	3.09	1.12			189	3.21	1.12		
Comprehensive High School	Traditional	925	3.13	1.14	0.80	>.2	495	3.15	1.12	0.08	>.5	430	3.10	1.16	1.32	>.1
	Nontraditional	205	3.20	1.07			108	3.14	1.05			97	3.27	1.09		
Vocational High School	Traditional	77	2.77	0.99	1.39	>.2	54	2.81	1.03	0.81	>.2	23	2.65	0.88	1.23	>.2
	Nontraditional	12	3.17	1.03			5	3.20	1.10			7	3.14	1.07		
Vocational Center	Traditional	264	2.89	0.13	0.72	>.2	162	2.84	1.12	0.18	>.5	102	2.96	1.15	0.52	>.5
	Nontraditional	69	2.84	1.11			19	2.79	1.23			50	2.86	1.07		
Technical Institute	Traditional	46	2.94	1.17	1.04	>.2	17	3.29	1.05	0.22	>.5	29	2.76	1.21	1.50	>.1
	Nontraditional	10	3.40	1.43			6	3.17	1.47			4	3.75	1.50		
Junior/ Community College	Traditional	142	3.44	1.09	0.56	>.5	82	3.48	1.07	1.56	>.1	60	3.40	1.12	0.60	>.5
	Nontraditional	56	3.34	1.23			25	3.08	1.29			31	3.55	1.15		

MOTHER SOCIOECONOMIC STATUS		Overall					Men					Women				
		N	$\bar{X}$	S.D.	t	p	N	$\bar{X}$	S.D.	t	p	N	$\bar{X}$	S.D.	t	p
All Schools	Traditional	888	2.77	1.10	1.73	<.1	471	2.78	1.11	2.12	<.05	417	2.77	1.10	0.35	>.5
	Nontraditional	224	2.91	1.02			104	3.03	0.97			120	2.81	1.06		
Comprehensive High School	Traditional	598	2.79	1.12	1.28	>.2	295	2.82	1.12	1.04	>.2	303	2.75	1.13	0.90	>.2
	Nontraditional	146	2.92	1.00			72	2.97	0.93			74	2.88	1.07		
Vocational High School	Traditional	49	2.73	1.04	0.49	>.5	35	2.80	1.11	0.08	>.2	14	2.57	0.85	0.84	>.2
	Nontraditional	6	2.50	1.38			4	2.75	1.50			2	2.00	1.41		
Vocational Center	Traditional	149	2.59	1.11	0.24	>.5	91	2.53	1.15	1.29	>.1	58	2.69	1.05	0.81	>.2
	Nontraditional	36	2.64	1.15			11	3.00	1.10			25	2.48	1.16		
Technical Institute	Traditional	22	2.77	0.87	2.40	<.05	8	2.75	0.71	1.99	<.1	14	2.79	0.98	1.48	>.1
	Nontraditional	6	3.67	0.52			3	3.67	0.58			3	3.67	0.58		
Junior/ Community College	Traditional	70	3.09	0.94	0.05	>.5	42	3.00	0.96	0.97	>.2	28	3.21	0.92	0.99	>.2
	Nontraditional	30	3.10	0.88			14	3.29	0.99			16	2.94	0.77		

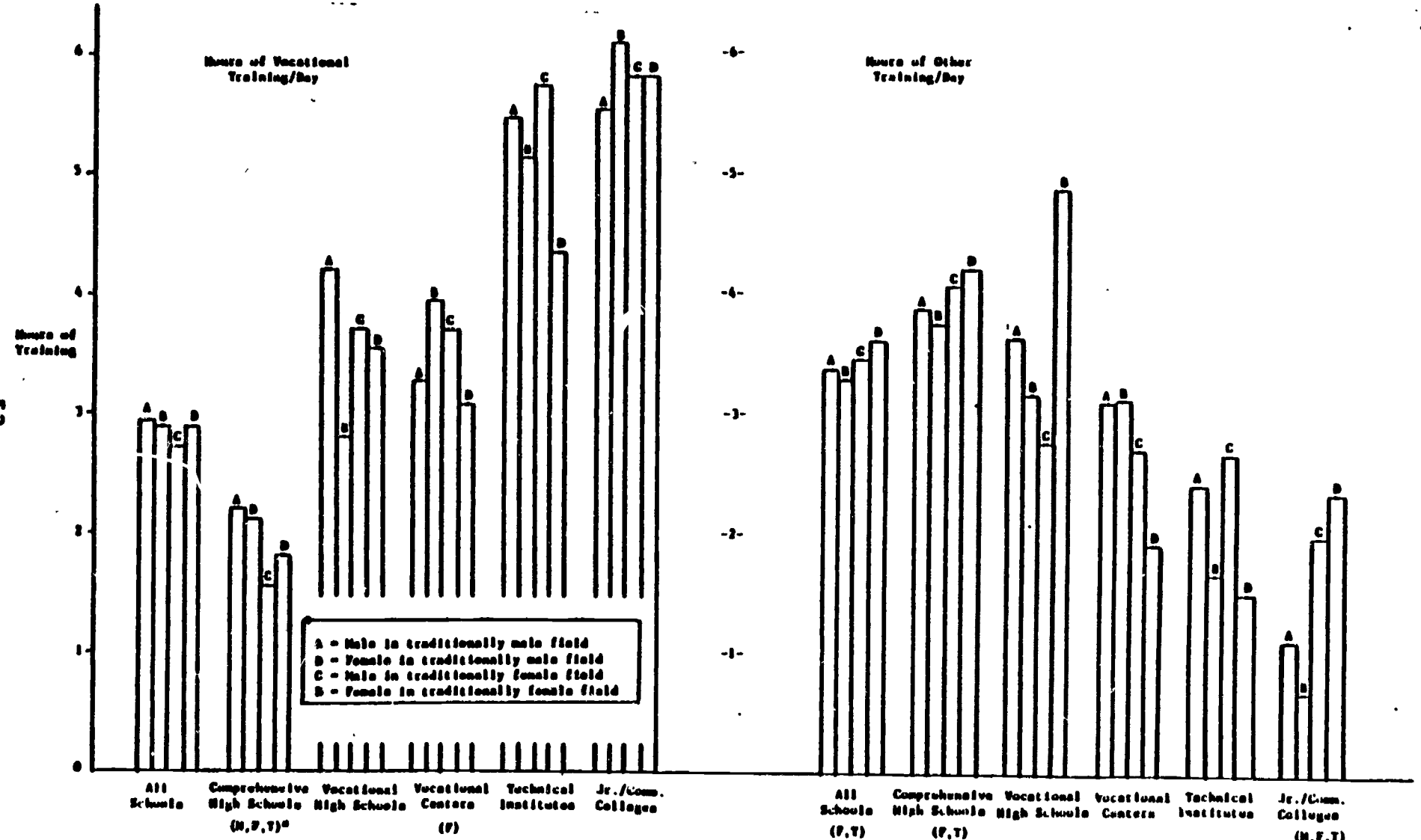
Table C. 10

Students Plans by Occupational Area and by Age

	Overall N		Will Enter Occupation				Seek More Vocational Training				Go to Work, Not Necessarily in Occupation Being Trained For				College Other Than Vocational				Military/Other/ No Plans			
	Men	Women	Men		Women		Men		Women		Men		Women		Men		Women		Men		Women	
By Occupational Area	N	N	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Health																						
Traditionally Female Occupations	29	139	16	55.2	62	44.6	6	20.7	46	33.1	11	37.9	37	26.6	11	37.9	52	37.4	9	31.0	38	27.3
Home Economics																						
Traditionally Female Occupations	113	305	23	20.4	56	18.4	54	47.7	87	28.6	53	46.9	124	40.6	41	36.3	135	44.2	36	32.0	84	27.6
Business & Office																						
Traditionally Female Occupations	64	349	6	9.4	143	41.0	14	21.9	136	39.0	17	26.6	120	34.3	36	56.3	120	34.3	21	32.8	90	25.8
Distributive Education																						
Traditionally Male Occupations	1	0	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Technical																						
Traditionally Male Occupations	115	33	43	37.4	17	51.5	41	35.6	8	24.3	40	34.8	13	39.4	42	36.6	23	69.7	42	36.5	11	33.8
Trade & Industrial																						
Traditionally Male Occupations	761	182	244	32.0	42	23.1	292	38.3	45	24.7	207	27.2	59	32.4	200	26.3	61	33.5	280	36.8	69	38.0
Traditionally Female Occupations	5	33	4	80.0	15	45.5	1	20.0	11	33.4	1	20.0	9	27.3	3	60.0	9	27.3	1	20.0	8	25.5
Agriculture																						
Traditionally Male Occupations	117	40	41	35.0	10	25.0	43	36.8	17	42.5	32	27.4	12	30.0	44	37.6	18	45.0	34	29.0	24	60.0
By Age																						
Up to 18																						
Traditionally Male Occupations	828	202	234	28.3	42	20.8	316	38.2	53	26.2	219	26.4	66	32.7	241	29.2	81	40.1	303	36.6	90	44.5
Traditionally Female Occupations	156	699	21	13.5	197	28.2	57	36.5	248	35.5	63	40.4	255	36.5	71	45.5	283	40.5	55	35.2	193	27.6
Age 19-22																						
Traditionally Male Occupations	87	22	49	56.3	11	50.0	33	37.9	6	27.3	33	37.9	7	31.8	22	25.3	7	31.8	27	31.0	4	18.1
Traditionally Female Occupations	23	58	8	34.8	30	51.7	8	34.7	11	19.0	10	43.4	18	31.1	8	34.8	18	31.0	7	30.4	11	19.0
Age 23 and Above																						
Traditionally Male Occupations	80	31	46	57.5	16	51.6	27	33.8	11	35.5	27	33.8	11	33.5	23	28.8	14	45.2	26	32.6	10	32.3
Traditionally Female Occupations	31	68	19	61.3	48	70.6	8	25.9	21	30.9	8	25.9	18	26.5	11	35.5	15	22.1	5	16.1	16	23.6

Figure C. 5

Training Received by Traditional and Nontraditional Students



a. "M" indicates that males in traditional and nontraditional classes differ reliably at the .10 level.
"F" indicates that females in traditional and nontraditional classes differ reliably at the .10 level.
"T" indicates that traditional and nontraditional students in general differ reliably at the .10 level.

Figure C. 6

Plans for the Future

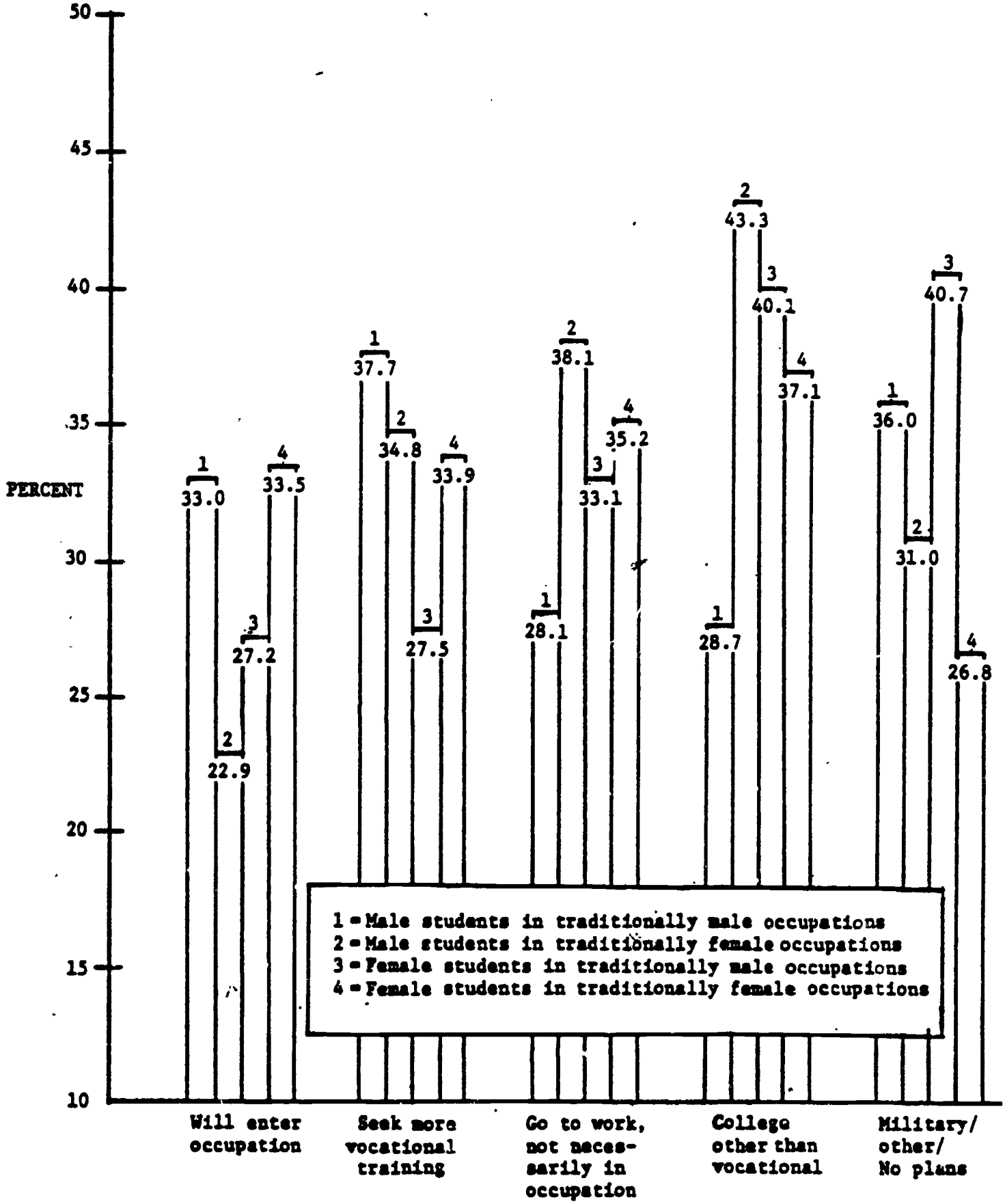
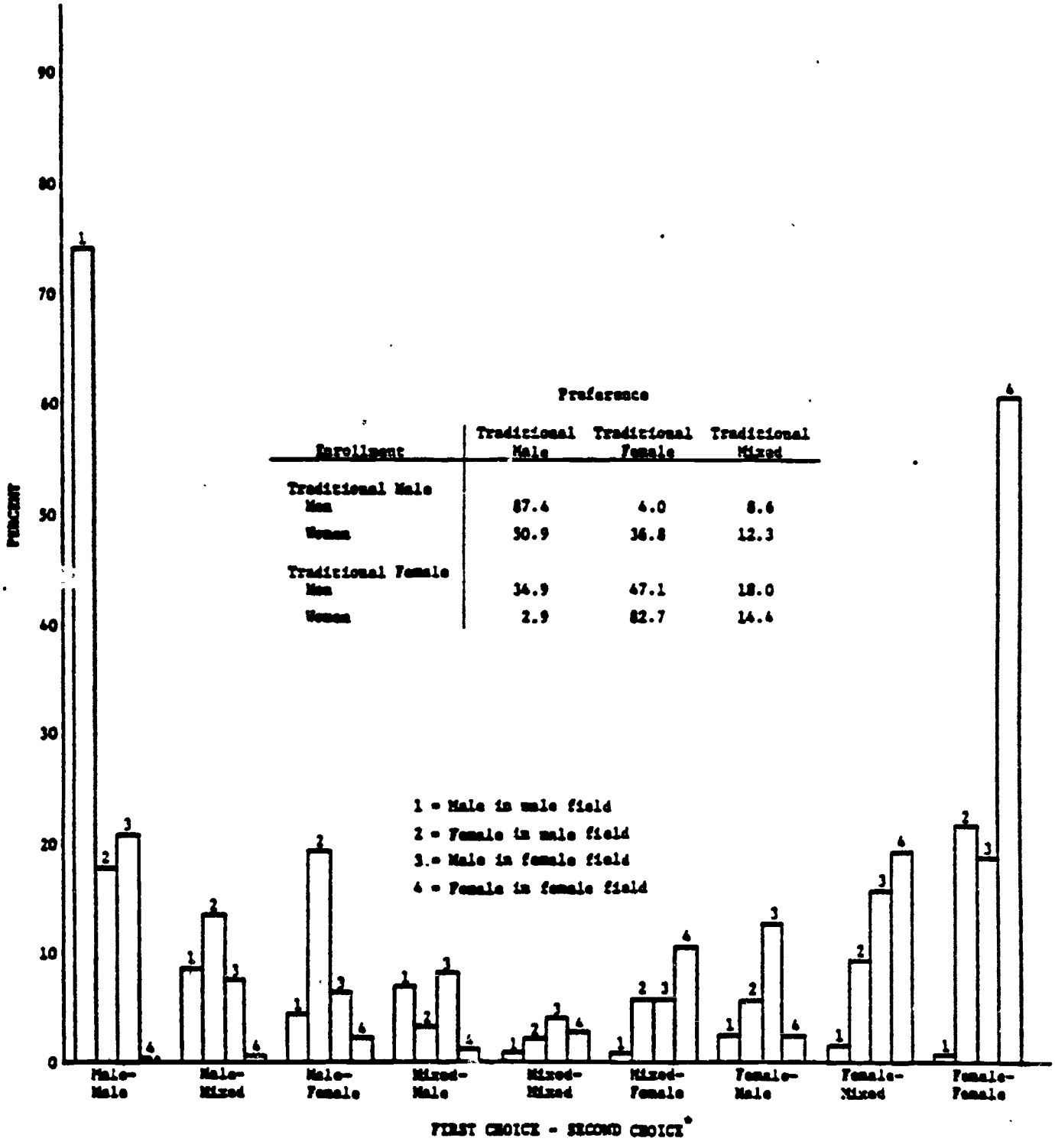


Figure C. 7

Occupational Preferences of Traditional and Nontraditional Students



Enrollment	Preference: Traditional Male	Traditional Female	Traditional Mixed
Traditional Male			
Men	87.4	4.0	8.6
Women	30.9	36.8	12.3
Traditional Female			
Men	34.9	47.1	18.0
Women	2.9	82.7	14.4

*"Male-male" means the first choice was in a male field as was the second choice. "Male-mixed" means the first choice was in a male area and the second in a mixed area, and so on.

nontraditional students being older in either case. There is a smattering of differences within various types of schools that are significant at .10 level[8] or beyond. Except in vocational centers, where men studying nontraditional occupations are about 2 years older than those studying traditional occupations, the data underlying each of these comparisons differ by less than 1 year.

Thus, even though there is some evidence of age differences between traditional and nontraditional students, these differences do not appear to be large. This is true across schools for men, for women, and for traditional versus nontraditional students overall. It is also true within each type of school. With the single exception noted, differences reliable at the .10 level reflect age differences of less than one year.

Occupational Level of Parents

Parental occupations were used as indicators of socioeconomic status. A score of from 1 to 5 was given for each parent employed outside of the home. A detailed description of the categories is given in Appendix C.5. Briefly, the levels may be characterized as follows:

- Level 1: laborers and unskilled workers.
- Level 2: semiskilled workers.
- Level 3: skilled workers and lower level supervisors.
- Level 4: proprietors, sales personnel, managers, technicians, and teachers.
- Level 5: officials and professionals.

Table C.9 shows average socioeconomic status, so defined, for traditional and nontraditional students overall, and for each sex separately. There are no differences between traditional and nontraditional students in fathers' socioeconomic status in any of these comparisons for any type of school or when all schools are combined.

A few differences appear in mothers' socioeconomic status which are significant at the .10 level; in each case the

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8. In the balance of this section, the .10 level will frequently be used, but only as a criterion to decide which findings to discuss in some detail. For major analyses, data for outcomes not significant at this level will also be presented; for more detailed analyses, the number of tests from which the significant tests were taken will also be specified. Moreover, some tests are obviously confounded. Proper care and caution should be taken in reviewing these analyses.

mothers' of nontraditional students have the higher status. Differences appear overall and for male students when all types of school are combined, as well as within technical institutes. (Due to the obvious confounding, these differences are probably all largely due to men enrolled in technical institutes, or one significant finding at the .10 level among 10 tests.)

Level of Participation

Figure C.5 shows the number of hours of vocational and other training taken by traditional and nontraditional students. The figures for each kind of training are all within 1/2 hour per day when data from all types of schools are combined. Comparisons significant at the .10 level or beyond between traditional and nontraditional students are indicated in Figure C.5. Differences significant at the .10 level in amount of vocational training are found primarily in comprehensive high schools where traditional students typically are enrolled for more hours than are nontraditional students. The greatest difference within comprehensive high schools is between men and women studying traditionally male occupations-- men receive, on the average, .65 hours more training a day.

Occupational Preferences and Plans for the Future

Figures C.6 and C.7 show, respectively, the plans for the future and the occupational preferences of traditional and nontraditional students of each sex. Tables C.10 and C.11 provide a more detailed breakdown of the data. The following emerge from an examination of these figures and tables:

- Overall, as shown in Figure C.6, traditional students are more likely to plan to enter the occupation for which they are training than are nontraditional students. Similarly, nontraditional students are less likely to anticipate seeking futher vocational training[9] than are traditional students of the same sex, and women in traditionally male programs are less likely to plan for more training than are men in traditionally male programs. On the other hand, nontraditional students are more likely than traditional students to plan to enroll in an academic college program.

  A more complicated picture emerges when one looks within occupational areas, however. Within the

9. This may or may not be in the same occupation in which students were enrolled at the time of the interview. The data on student choice suggests that very often it probably is not, especially for nontraditional students.

Table C. 11

Students' First Choice of Career

		Male in Traditionally Male Area			Female in Traditionally Male Area			Male in Traditionally Mixed Area			Female in Traditionally Mixed Area			Male in Traditionally Female Area			Female in Traditionally Female Area		
		First Choice			First Choice			First Choice			First Choice			First Choice			First Choice		
		Male	Mixed	Female	Male	Mixed	Female	Male	Mixed	Female	Male	Mixed	Female	Male	Mixed	Female	Male	Mixed	Female
By Occupational Area																			
All Occupational Areas Combined	N	757	75	34	108	26	78	185	218	29	15	319	189	60	31	81	21	105	603
	%	87.4	8.6	4.0	50.9	12.3	36.8	29.0	62.0	8.2	2.8	60.9	36.1	34.9	18.0	47.1	2.9	14.4	82.7
Health	N	N/A	N/A	N/A	N/A	N/A	N/A	1	14	2	N/A	19	11	3	1	22	N/A	9	120
	%	N/A	N/A	N/A	N/A	N/A	N/A	5.9	82.3	11.8	N/A	63.4	36.6	11.5	3.8	84.6	N/A	7.0	93.0
Home Economics	N	N/A	N/A	N/A	N/A	N/A	N/A	9	8	1	3	8	18	48	14	34	12	46	208
	%	N/A	N/A	N/A	N/A	N/A	N/A	50.1	44.4	5.6	10.3	27.5	62.1	45.5	15.9	38.6	4.5	17.3	78.2
Business	N	N/A	N/A	N/A	N/A	N/A	N/A	36	184	11	3	167	63	17	16	28	9	47	249
	%	N/A	N/A	N/A	N/A	N/A	N/A	23.8	68.9	7.2	1.3	71.7	27.0	32.1	30.1	37.7	3.0	15.4	81.6
Distributive Education	N	1	N/A	N/A	N/A	N/A	N/A	38	68	14	7	94	74	N/A	N/A	N/A	N/A	N/A	N/A
	%	100.0	N/A	N/A	N/A	N/A	N/A	31.7	56.7	11.6	4.0	53.0	42.3	N/A	N/A	N/A	N/A	N/A	N/A
Technical	N	90	10	3	13	2	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	%	87.4	9.7	2.9	61.9	9.6	28.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Trade and Industrial	N	575	56	26	71	22	61	9	16	1	2	17	10	N/A	N/A	5	N/A	3	26
	%	87.6	8.5	4.0	46.1	14.2	39.6	34.6	61.5	3.8	6.8	58.6	34.4	N/A	N/A	100.0	N/A	10.3	89.6
Agricultural	N	91	9	5	24	2	11	10	8	N/A	N/A	14	12	N/A	N/A	N/A	N/A	N/A	N/A
	%	86.6	8.6	4.8	64.8	5.4	29.7	55.6	44.4	N/A	N/A	53.8	46.1	N/A	N/A	N/A	N/A	N/A	N/A
Other	N	N/A	N/A	N/A	N/A	N/A	N/A	2	N/A	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
	%	N/A	N/A	N/A	N/A	N/A	N/A	100.0	N/A	N/A	N/A	N/A	100.0	N/A	N/A	N/A	N/A	N/A	N/A
By Age																			
Up to 18	N	634	65	23	82	23	68	88	156	21	14	262	176	52	22	52	20	93	501
	%	87.8	9.0	3.2	47.4	13.3	39.3	33.2	58.9	7.8	3.8	58.8	38.9	41.3	17.4	41.3	3.2	15.1	81.7
Age 19-22	N	67	7	3	11	2	4	8	23	4	1	28	9	5	6	9	N/A	6	46
	%	87.8	9.1	3.9	64.7	11.8	23.6	22.9	65.7	11.2	3.3	66.7	30.8	25.0	30.0	45.0	N/A	11.5	88.4
Age 23 and Above	N	56	3	8	15	1	6	7	37	4	N/A	36	4	2	3	20	1	6	55
	%	83.6	4.5	12.0	68.2	4.5	27.2	14.6	77.1	8.4	N/A	90.0	10.0	8.0	12.0	80.0	1.6	9.7	88.7

"hardcore" male areas of agriculture and trade and industrial, a greater percentage of men than women plan to enter traditionally male occupations for which they are training. The men lead by about 10 percent in either area. The men in traditionally male trade and industrial occupations also lead their female fellow students by about 10 percent in indicating that they will seek further vocational training; in traditionally male agricultural occupations, however, the women lead the men by around 6 percent. In each occupational area, women are more likely than men to indicate that they will take an academic college program, or that they will take any job they can get. Women are more likely than men to indicate that they will enter traditionally male technical occupations (52 percent versus 37 percent). These same women trail their male counterparts by about 8 percent in plans to seek further vocational training, but lead them by over 30 percent in plans to seek academic postsecondary education.

Men studying traditionally female occupations are, in most occupational areas, more likely than their female counterparts to plan to enter the field for which they are training; differences are about 2 percent in home economics, 10 percent in health, and 34 percent in trade and industrial. Only in business and office is the situation reversed; there 41 percent of the women plan to enter the occupation for which they are training, as against about 9 percent of the men. (The variation in the number of students upon which the various percentages are based accounts for the fact that, overall, female students are more likely than male students to plan to enter a traditionally female field for which they are training.)

- Female students enrolled in traditionally female occupations are, except in home economics, more likely to seek further vocational training than are men enrolled in these occupations. Women, with the same exception, are more likely than men to plan on working, but not necessarily in the area for which they are training, while men are more likely than women to plan to pursue an academic college program.

- The bottom portion of Table C.10 shows student plans as a function of age,[10] sex, and enrollment. The proportion of people planning to enter the occupation for which they are training increases with age. In each of the three age categories, students enrolled

10. Three age categories are used: up to 18 years, inclusive; 19 to 22 years; inclusive; and 23 years and older.

in programs traditional for their sex were more likely to plan to enter the occupation for which they were training than were nontraditional students. The figures for traditional/nontraditional students are, for the three age categories: 18 years, 28.3 percent/ 20.8 percent; 19-22 years, 56.3 percent/50.0 percent; and 23 years, 57.5 percent/51.6 percent. For traditionally female occupations, the figures for women/men are: 18 years, 28.2 percent/13.5 percent; 19-22 years, 51.7 percent/34.8 percent; and 23 years, 70.6 percent/61.3 percent.

While these differences are consistent, it should be noted that women studying a traditionally male occupation are not strikingly less committed to entering the occupation than are men in the same age group. Sex differences are greater among those studying traditionally female occupations; this is most dramatic among those 18 years old or younger where the percentage for boys is less than half that for girls.

The only other response category in which there is a consistent difference of more than a couple of percentage points between traditional and nontraditional students is in "college other than vocational." At each age level, fewer traditional than nontraditional students plan to take a nonvocational college program. The same is true for both traditionally male and traditionally female occupations. The figures for men/women in traditionally male occupations are: 18 years, 29.2 percent/40.1 percent; 19-22 years, 25.3 percent/32.8 percent; and 23 years, 28.8 percent/45.2 percent. In traditionally female occupations, the figures for women/men are: 18 years, 40.5 percent/45.5 percent; 19-22 years, 31.0 percent/34.8 percent; and 23 years, 22.1 percent/35.5 percent.

- When asked to select first and second choices from among a list of occupations, traditional and nontraditional students diverged. Over 85 percent of the men and about half of the women enrolled in traditionally male occupations picked a male occupation as their first choice. Conversely, over 80 percent of the women enrolled in a traditionally female occupation picked a female occupation first, while about 47 percent of the men did. Figure C.7 presents detailed information on the first and second choices.

  Generally speaking, the same pattern holds when one looks within occupational areas. Over 86 percent of the men studying traditionally male occupations within traditionally male occupational areas picked a

male first choice. Of women similarly situated, 46 percent in trade and industrial picked a traditionally male first choice; about 62 percent in technical and 65 percent in agriculture did likewise.

Within traditionally female occupations in home economics, 78 percent of the women made a traditionally female first choice, but only 39 percent of the men did. In business and office, the corresponding figures were 82 percent and 38 percent. Only in traditionally female health occupations were the preferences of the sexes close to equal--93 percent of the women made a traditionally female first choice, as did 85 percent of the men.

The most common choice among students studying traditionally mixed occupations was, in most areas, a mixed occupation. However, with the exception of men in health, those students who did not pick a mixed occupation overwhelmingly chose an occupation traditional for their sex.

Stereotyped choice is somewhat less among older students. First choices made by women 18 years old or younger who are studying traditionally male occupations is 47 percent male, those 19-22 years old the figure is 65 percent; for those 23 years and older, the figure is 68 percent. They trail the men at each level, however the corresponding figures for men are: 88 percent, 87 percent, and 94 percent. Of women in the three age groups who are studying traditionally female occupations 82 percent, 88 percent, and 89 percent, respectively, choose a traditionally female occupation first; the corresponding figures for men are 41 percent, 45 percent, and 80 percent.

Viewed overall, women enrolled in traditionally male courses were less likely than men in such courses to anticipate entering the occupations for which they were training, to anticipate pursuing further vocational training, or to pick a traditionally male occupation as a first choice. Similar results obtained for men enrolled in traditionally female occupations. The results vary substantially, however, among occupational area and age, particularly as regards plans for the future.

Figure C.8 shows the percentage of male and female students who plan to work after marriage, and the percentage who indicated that marriage (or plans for marriage) affected their educational plans. Women are somewhat less likely than men to indicate plans for working after marriage, while the largest overall spread being between men and women studying

Figure C. 8

Effect of Marriage on Occupational Choice

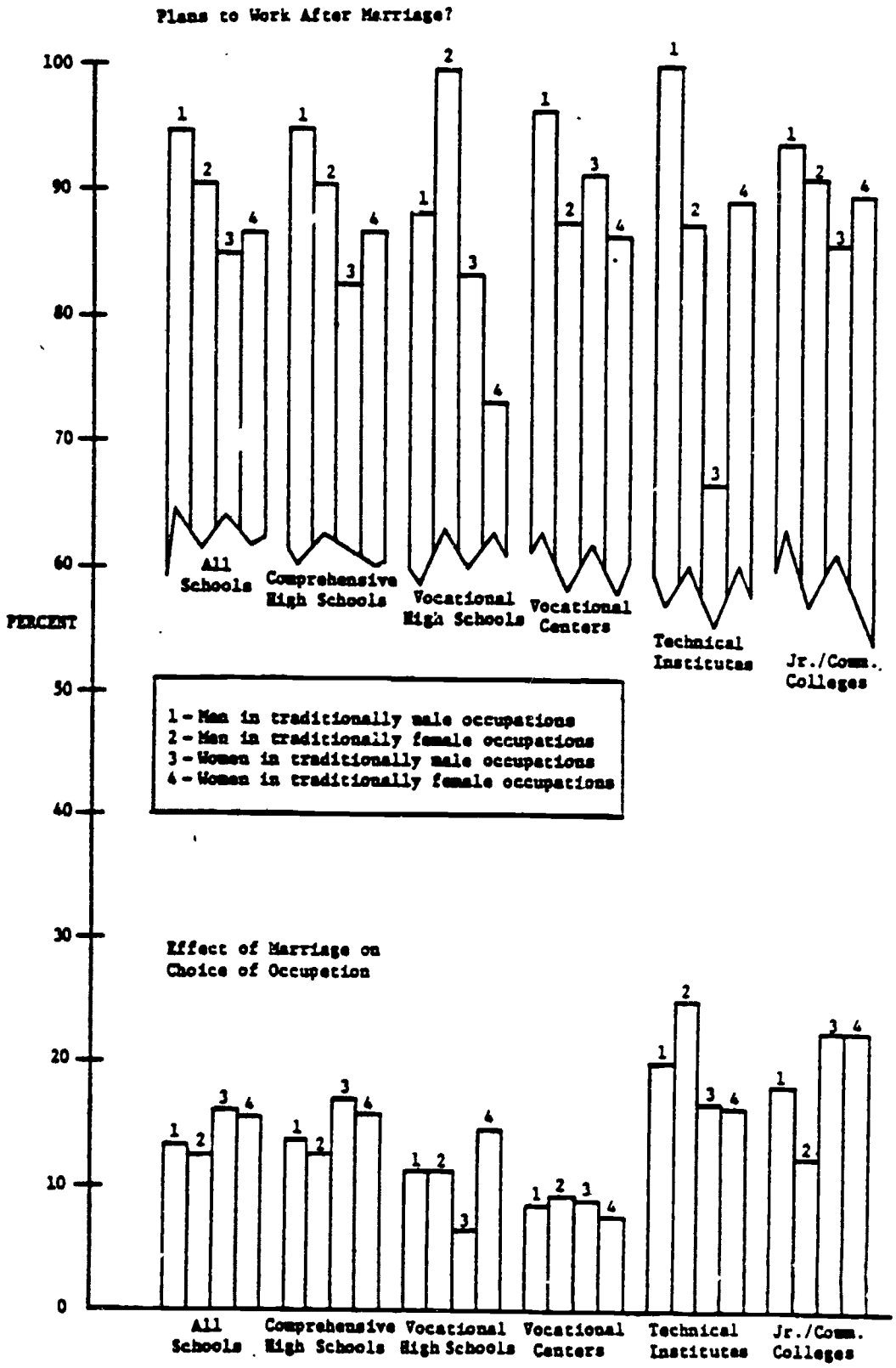

Table C. 12

Male and Female Teachers by Occupational Area

(Unweighted Data)

Occupational Area	Men		Women		Total by Race					Total by Race and Sex									
	N	%	N	%	White %	Black %	Hispanic %	Asian/ Pacific Islander %	American Indian/ Native Alaskan %	White Men %	Black Men %	Hispanic Men %	Asian/ Pacific Islander Men %	American Indian/ Native Alaskan Men %	White Women %	Black Women %	Hispanic Women %	Asian/ Pacific Islander Women %	American Indian/ Native Alaskan Women %
Overall																			
Trad. Male	373.9	96.9	0.7	3.1	94.4	15.2	2.2	.0	.4	81.2	13.0	.9	.8	.4	1.2	.5	.4	0 0	0.0
Trad. Female	24.0	22.5	174.2	87.5	84.0	13.0	.0	.5	.2	9.7	2.2	0.0	.5	0.0	73.1	21.5	.0	0.0	.2
Trad. Mixed	93.5	91.4	88.1	48.6	87.2	10.9	.6	2.5	0.0	46.5	3.7	.5	.9	0.0	40.6	7.1	.5	.6	0.0
English																			
Trad. Female	0.0	0.0	33.0	100.0	92.6	4.4	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	91.6	4.4	3.0	0.0	0.0
Trad. Mixed	2.0	39.0	3.5	61.0	95.2	4.0	0.0	0.0	0.0	39.0	0.0	0.0	0.0	0.0	76.2	4.0	0.0	0.0	0.0
Home Economics																			
Trad. Female	.0	1.5	52.5	98.5	81.2	17.5	.9	0.0	.6	.9	.6	0.0	0.0	0.0	80.2	16.8	.9	0.0	.6
Trad. Mixed	9.5	23.0	30.7	76.2	77.2	21.4	1.4	0.0	0.0	23.9	1.9	0.0	0.0	0.0	53.3	19.4	1.4	0.0	0.0
Business & Office																			
Trad. Female	23.0	22.7	78.5	77.5	85.2	13.9	0.0	1.0	0.0	18.5	3.5	0.0	1.0	0.0	66.6	10.7	0.0	0.0	0.0
Trad. Mixed	30.4	41.2	40.5	58.8	88.2	9.8	0.0	1.9	0.0	37.4	3.5	0.0	.4	0.0	50.0	6.3	0.0	1.5	0.0
Services & Distribution																			
Trad. Male	.7	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trad. Mixed	26.1	74.2	10.0	25.8	94.5	4.1	0.0	1.7	0.0	70.9	1.7	0.0	1.7	0.0	23.4	2.4	0.0	0.0	0.0
Technical																			
Trad. Male	22.5	95.7	1.0	4.3	94.5	1.5	4.5	0.0	0.0	90.2	1.1	4.5	0.0	0.0	4.5	0.0	0.0	0.0	0.0
Trade & Industrial																			
Trad. Male	236.0	98.5	4.0	1.7	81.5	15.4	2.0	.0	.4	81.6	14.9	.6	.0	.4	.7	.5	.4	0.0	0.0
Trad. Female	1.0	9.5	9.7	90.7	74.0	25.2	0.0	0.0	0.0	0.0	9.5	0.0	0.0	0.0	74.0	25.9	0.0	0.0	0.0
Trad. Mixed	5.0	94.5	.5	5.7	90.6	50.9	9.4	0.0	0.0	34.0	30.9	9.4	0.0	0.0	3.7	0.0	0.0	0.0	0.0
Agriculture																			
Trad. Male	36.7	83.9	3.7	10.2	97.2	2.5	0.0	1.5	0.0	78.9	1.5	0.0	1.5	0.0	18.1	0.0	0.0	0.0	0.0
Trad. Mixed	11.7	97.5	.5	2.5	94.7	2.5	0.0	5.0	0.0	89.2	2.5	0.4	5.0	0.0	1.5	0.0	0.0	0.0	0.0
Other																			
Trad. Mixed	5.0	74.5	2.0	25.6	100.0	0.0	0.0	0.0	0.0	74.5	0.0	0.0	0.0	0.0	25.6	0.0	7.0	0.0	0.0

Table C. 13

Male and Female Teachers by Occupational Area

(Weighted Data)

Occupational Area	Total by Sex				Total by Race					Total by Race and Sex									
	Men		Women		White	Black	Hispanic	Asian/ Pacific Islander	American Indian/ Native Alaskan	White Men	Black Men	Hispanic Men	Asian/ Pacific Islander Men	American Indian/ Native Alaskan Men	White Women	Black Women	Hispanic Women	Asian/ Pacific Islander Women	American Indian/ Native Alaskan Women
	#	%	#	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Overall																			
Trad. Male	41,447	96.2	1,598	3.7	82.8	13.7	3.1	.7	.4	81.4	12.6	1.2	.7	.4	.6	1.1	1.9	0.0	0.0
Trad. Female	3,848	11.1	30,678	88.9	86.2	10.5	2.7	.3	.3	9.2	1.6	0.0	.3	0.0	77.0	8.9	2.7	0.0	.2
Trad. Mixed	13,762	48.3	14,741	51.7	89.8	9.1	.3	.0	0.0	44.5	3.3	0.0	.3	0.0	45.3	5.8	.3	.3	0.0
Health																			
TOTAL	785	6.4	11,477	93.6	85.3	8.1	6.6	0.0	0.0	6.4	0.0	0.0	0.0	0.0	78.9	8.1	6.6	0.0	0.0
Trad. Female	0	0.0	9,333	100.0	81.9	9.4	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	81.9	9.4	8.7	0.0	0.0
Trad. Mixed	785	25.9	2,244	74.1	95.8	4.2	0.0	0.0	0.0	25.9	0.0	0.0	0.0	0.0	69.9	4.2	0.0	0.0	0.0
Home Economics																			
TOTAL	817	6.2	12,435	93.8	84.4	12.4	1.3	0.0	0.0	5.8	.4	0.0	0.0	0.0	78.6	12.9	1.3	0.0	0.0
Trad. Female	88	1.1	7,671	98.9	87.2	10.2	1.3	0.0	1.4	.6	.2	0.0	0.0	0.0	86.6	9.6	1.3	0.0	1.4
Trad. Mixed	729	12.3	4,764	86.7	80.4	17.8	1.8	0.0	0.0	13.1	.2	0.0	0.0	0.0	67.3	17.6	1.8	0.0	0.0
Business & Office																			
TOTAL	9,969	32.6	20,635	67.4	89.2	10.1	0.0	.7	0.0	37.9	4.3	0.0	.4	0.0	61.3	5.8	0.0	.3	0.0
Trad. Female	3,627	22.4	12,584	77.6	89.0	9.6	0.0	.6	0.0	19.3	2.5	0.0	.6	0.0	70.5	7.2	0.0	0.0	0.0
Trad. Mixed	6,342	44.1	8,049	55.9	89.5	10.6	0.0	.9	0.0	37.6	6.3	0.0	.2	0.0	50.9	4.3	0.0	.6	0.0
Marketing & Distribution																			
TOTAL	3,153	82.7	1,081	17.3	96.9	2.0	0.0	1.0	0.0	81.3	.2	0.0	1.0	0.0	15.6	1.9	0.0	0.0	0.0
Trad. Male	68	100.0	0	0.0	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trad. Mixed	3,085	82.5	1,081	17.5	96.9	2.0	0.0	1.0	0.0	81.3	.2	0.0	1.0	0.0	15.6	1.9	0.0	0.0	0.0
Technical																			
Trad. Male	4,310	97.2	128	2.8	86.1	6.0	7.9	0.0	0.0	85.3	6.0	7.9	0.0	0.0	2.8	0.0	0.0	0.0	0.0
Trade & Industrial																			
TOTAL	34,864	93.1	2,582	6.9	79.0	16.3	2.4	.0	.3	77.3	14.2	.4	.0	.3	2.6	2.1	2.2	0.0	0.0
Trad. Male	34,258	96.1	1,384	3.9	80.2	15.7	2.7	.0	.3	80.1	14.3	.4	.0	.3	.2	1.4	2.3	0.0	0.0
Trad. Female	126	9.8	1,162	90.2	67.1	32.9	0.0	0.0	0.0	0.0	9.8	0.0	0.0	0.0	67.1	23.1	0.0	0.0	0.0
Trad. Mixed	480	93.0	36	7.0	81.9	18.0	.2	0.0	0.0	74.8	18.1	.1	0.0	0.0	7.0	0.0	0.0	0.0	0.0
Agriculture																			
TOTAL	3,761	97.5	96	2.5	96.0	1.6	0.0	2.5	0.0	93.5	1.6	0.0	2.5	0.0	2.5	0.0	0.0	0.0	0.0
Trad. Male	2,812	97.1	78	2.9	97.7	1.1	0.0	1.2	0.0	94.0	1.1	0.0	1.1	0.0	2.9	0.0	0.0	0.0	0.0
Trad. Mixed	1,149	96.5	18	1.5	92.1	2.6	0.0	3.3	0.0	90.6	2.6	0.0	3.3	0.0	1.5	0.0	0.0	0.0	0.0
Other																			
Trad. Mixed	691	82.2	150	17.8	100.0	0.0	0.0	0.0	0.0	82.2	0.0	0.0	0.0	0.0	17.8	0.0	0.0	0.0	0.0

Table C. 14

Male and Female Teachers by Type of School

(Unweighted Data)

Type of School	Total by Sex				Total by Race					Total by Race and Sex									
	Men		Women		White	Black	Hispanic	Asian/ Pacific Islander	American Indian/ Native Alaskan	White Men	Black Men	Hispanic Men	Asian/ Pacific Islander Men	American Indian/ Native Alaskan Men	White Women	Black Women	Hispanic Women	Asian Pacific Islander Women	American Indian/ Native Alaskan Women
	#	%	#	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Parochial																			
Trad. Male	279.9	96.9	8.7	3.1	84.4	12.3	1.1	.0	.4	82.3	11.8	.9	.4	.8	2.2	.3	.4	0.0	0.0
Trad. Female	24.0	12.5	170.1	87.5	84.0	13.0	.0	.3	.3	9.7	1.3	0.0	0.0	.3	75.1	11.3	.0	.3	0.0
Trad. Mixed	93.9	51.4	88.1	48.6	87.1	10.9	.6	1.3	0.0	46.3	3.7	.3	0.0	.7	40.6	7.3	.3	0.0	.6
Experimental High School																			
Trad. Male	31.3	100.0	0.0	0.0	73.5	23.6	0.0	1.0	0.0	73.3	23.6	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Trad. Female	.3	3.3	6.2	96.9	46.3	33.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0	0.0	46.1	49.3	0.0	0.0	0.0
Trad. Mixed	3.4	64.5	1.8	35.3	38.0	48.3	0.0	13.9	0.0	19.1	32.7	0.0	13.5	0.0	19.2	13.4	0.0	6.0	0.0
Comprehensive High School																			
Trad. Male	143.4	96.9	4.8	3.1	86.9	10.4	.7	1.3	.7	84.1	10.1	.7	1.3	.7	1.9	.3	0.0	0.0	0.0
Trad. Female	19.0	14.4	113.6	85.7	84.3	14.3	.4	.0	.1	11.1	1.3	0.0	.0	0.0	73.2	11.0	.4	0.0	.2
Trad. Mixed	53.5	47.3	59.7	52.7	87.9	9.9	.4	1.0	0.0	43.7	3.7	3.0	.9	0.0	44.1	7.2	.4	.9	0.0
Technical Institute																			
Trad. Male	16.7	100.0	0.0	0.0	43.7	36.3	0.0	0.0	0.0	43.9	36.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trad. Female	0.0	0.0	3.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0
Trad. Mixed	2.7	40.0	4.0	60.0	70.0	30.0	0.0	0.0	0.0	40.3	0.0	0.0	0.0	0.0	29.9	29.9	0.0	0.0	0.0
Vocational Center																			
Trad. Male	20.3	100.0	0.0	0.0	90.0	9.4	.8	0.0	0.0	90.8	8.4	.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trad. Female	4.0	14.4	23.7	85.5	83.3	16.4	0.0	0.0	0.0	10.0	3.6	0.0	0.0	0.0	24.7	10.0	0.0	0.0	0.0
Trad. Mixed	14.0	34.6	22.3	65.4	87.1	11.1	1.0	0.0	0.0	49.1	3.7	1.0	0.0	0.0	38.0	7.4	0.0	0.0	0.0
Junior & Community Colleges																			
Trad. Male	29.0	87.9	4.0	12.1	84.9	9.1	6.0	0.0	0.0	78.8	6.1	3.0	0.0	0.0	6.1	3.0	3.0	0.0	0.0
Trad. Female	1.5	3.3	23.7	94.5	91.6	3.7	3.7	0.0	0.0	3.5	0.0	0.0	0.0	0.0	87.1	3.7	3.7	0.0	0.0
Trad. Mixed	19.0	64.0	10.3	35.3	96.6	3.4	0.0	0.0	0.0	61.4	3.4	0.0	0.0	0.0	35.2	0.0	0.0	0.0	0.0

Table C. 15

Male and Female Teachers by Type of School

(Weighted Data)

Type of School	Total by Sex: Men N	Men %	Women N	Women %	Total by Race: White %	Black %	Hispanic %	Asian/ Pacific Islander %	American Indian/ Native Alaskan %	Total by Race and Sex: White Men %	Black Men %	Hispanic Men %	Asian/ Pacific Islander Men %	American Indian/ Native Alaskan Men %	White Women %	Black Women %	Hispanic Women %	Asian/ Pacific Islander Women %	American Indian/ Native Alaskan Women %
Overall																			
Trad. Male	41,447	96.3	1,588	3.7	82.0	13.7	3.1	.7	.4	81.4	12.6	3.2	.7	.4	.6	1.1	1.9	0.0	0.0
Trad. Female	3,040	11.1	20,678	88.9	86.2	10.5	2.7	.3	.3	9.2	1.6	0.0	.3	0.0	77.0	8.9	2.7	0.0	.3
Trad. Mixed	15,262	48.3	16,341	51.7	88.0	9.1	.3	.0	0.0	44.5	3.3	0.0	.3	0.0	43.3	.3	.3	.3	0.0
Vocational High School																			
Trad. Male	2,200	100.0	0	0.0	84.5	14.1	0.0	1.4	0.0	84.5	14.1	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0
Trad. Female	6	1.4	417	98.7	88.2	11.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	88.0	10.4	0.0	0.0	0.0
Trad. Mixed	90	78.0	28	22.0	23.6	27.3	0.0	49.1	0.0	0.9	19.0	0.0	49.1	0.0	13.7	0.3	0.0	0.0	0.0
Comprehensive High School																			
Trad. Male	16,720	99.1	154	.9	87.4	9.0	.0	1.7	1.1	86.6	0.0	.0	1.7	1.1	.0	.1	0.0	0.0	0.0
Trad. Female	2,379	16.9	12,661	83.1	84.5	13.6	.6	.6	.7	14.3	2.0	0.0	.6	0.0	70.2	11.6	.6	0.0	.7
Trad. Mixed	6,372	50.3	6,305	49.7	88.0	9.0	.0	1.4	0.0	48.1	1.3	0.0	.7	0.0	39.9	0.3	.0	.7	0.0
Technical Institute																			
Trad. Male	2,321	100.0	0	0.0	34.2	65.0	0.0	0.0	0.0	34.2	65.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trad. Female	0	0.0	815	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0
Trad. Mixed	341	29.0	805	70.3	55.6	44.3	0.0	0.0	0.0	29.0	0.0	0.0	0.0	0.0	23.0	44.3	0.0	0.0	0.0
Vocational Center																			
Trad. Male	8,000	100.0	0	0.0	90.4	9.6	0.0	0.0	0.0	90.4	9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trad. Female	694	14.9	3,933	85.0	85.0	14.9	0.0	0.0	0.0	9.4	5.6	0.0	0.0	0.0	75.6	9.4	0.0	0.0	0.0
Trad. Mixed	1,350	44.0	1,713	56.0	91.1	8.9	0.0	0.0	0.0	43.9	.1	0.0	0.0	0.0	47.3	8.7	0.0	0.0	0.0
Junior & Community Colleges																			
Trad. Male	12,180	89.5	1,436	10.6	78.2	13.1	0.0	0.0	0.0	77.2	9.6	2.7	0.0	0.0	1.0	3.5	6.1	0.0	0.0
Trad. Female	563	4.2	12,849	95.0	87.6	6.2	6.2	0.0	0.0	3.9	0.0	6.0	0.0	0.0	83.4	6.2	6.2	0.0	0.0
Trad. Mixed	7,100	48.7	7,488	51.3	94.3	5.7	0.0	0.0	0.0	43.0	5.7	0.0	0.0	0.0	51.3	0.0	0.0	0.0	0.0

traditionally male occupations (about 10 percent). Women are also somewhat more likely to indicate that marriage affects their occupational choice, but the differences are small. The figure shows the breakdown by type of school. Men in traditionally male occupational programs are more likely to indicate that they plan to work after marriage than are their female counterparts. The same may be said of students studying traditionally female occupations, except for those enrolled in technical institutes.

Staffing Patterns at the School Level

Teachers of traditionally male occupations are predominantly men; teachers of traditionally female occupations are predominantly women. This is true overall and within each occupational area; it is also true for each type of school. The situation for traditionally mixed occupations is somewhat less clearcut: while there are approximately equal numbers of men and women teaching such occupations, overall, the proportions vary greatly between occupational areas, as well as between types of schools. Generally speaking, men predominate in mixed fields within traditionally male occupational areas, while women predominate in mixed fields in traditionally female areas.

About 60 percent of vocational school counselors are men, as are about 50 percent of the feeder school counselors sampled. Schools which are devoted entirely to vocational education tend to have higher percentages of male counselors than do schools with major offerings in other fields. Overall, there are few statistically significant correlations between School Activity Indexes and the proportion of nontraditional male or female teachers.

Characteristics of Vocational Teachers

Tables C.12 to C.15 show the number of men and women of each sex teaching in traditionally male, traditionally female, and traditionally mixed occupations.[11] The first two tables provide, respectively, unweighted and weighted data broken down by occupational area; the last two present the same data by type of school.

The following facts emerge from a review of these tables:

- Overall, more than 96 percent of those teaching traditionally male occupations are men, while over 87

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11. Fractional entries appear in the unweighted data as teachers were allowed to indicate up to three occupations which they taught. A teacher who indicated two occupations was counted as 1/2 twice, while a teacher who indicated three was counted as 1/3 three times.

percent of those teaching female occupations are women. Only in junior/community colleges (89.5 percent weighted; 87.9 unweighted) and in traditionally male agricultural occupations (81.9 percent unweighted, but 97.1 percent weighted) do these percentages dip below 90 for men; only in business and office occupations does the percentage of women go below 80 (77.6 percent weighted; 77.3 percent unweighted).

- While there are approximately equal numbers of men and women teaching traditionally mixed occupations, overall, the picture differs substantially when occupational areas are viewed separately. Men predominate in the traditionally male occupational areas of agriculture (97.1 percent for weighted data/81.9 percent for unweighted data), and trade and industrial (93.0 percent/94.3 percent); the majority of teachers in mixed distributive education occupations are men as well (82.5 percent/74.2 percent). Women are in the majority teaching traditionally mixed occupations in traditionally female occupational areas, but their dominance is less pronounced. The percentages of women, using weighted and unweighted data, are: health, 74.1 percent/81.0 percent; home economics, 86.7 percent/74.2 percent; and business and office, 55.9 percent/58.8 percent.

- Blacks are represented among teachers slightly more than in the population as a whole: 11.4 percent in the weighted data, 12.75 percent in the unweighted data, compared to 11.1 percent in the 1970 census. The corresponding figures for Asians and Pacific Islanders[12] are: weighted, .6 percent; unweighted, .9 percent; and census, 1.7 percent. For American Indians and Native Alaskans[13] the data are: weighted, .26; unweighted, .20; and census, .4. Hispanics represent .22 percent of the weighted and .9 percent of the unweighted totals of teachers interviewed in this study. This is much less than their 5.1 representation in the population.

Thus, the sex of teachers follows traditional occupational lines quite closely for traditionally male and traditionally female occupations, and traditional occupational area lines

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12. Census data include only Chinese, Japanese, and Filipinos.

13. Census data do not include Native Alaskans.

for mixed occupations in traditionally male or female areas. Marketing and distribution teachers, who work in a traditionally mixed occupational area, are predominantly men in the present sample.

Activity Indexes and Sex of Teachers

Table C.16 shows the correlation of each School Level Activity Index with the proportion of men teaching traditionally female occupations and the corresponding proportion of women teaching traditionally male occupations. Correlations significant at the .10 level appear between the Internal Affirmative Action Index and the percentage of nontraditional teachers both in traditionally male and in traditionally female fields. Thus, higher levels of affirmative action activity goes hand in hand with a higher proportion of nontraditional teachers. A significant correlation also appears between the Teacher Awareness Activities Index and the proportion of males teaching traditionally female occupations. The great majority of the correlations, however, do not come close to being statistically significant at even the .10 level.

Characteristics of Vocational School Counselors

Tables C.17 and C.18 show the number of vocational school counselors by race and sex, in the various regions and types of schools. As used here, "vocational school counselor" means a counselor employed at a school sampled in the present study. Often they have duties other than counseling vocational students; for some, these other duties may be their primary responsibilities. The following findings emerge from an examination of the data:

- About 60 percent of vocational school counselors are men; the percentages vary from 59.7 percent to 65.0 percent among regions of the country in the weighted data. Variation among types of schools is more substantial, from 56.3 percent to 99.7 percent for the weighted data, and from 56.5 percent to 75.0 percent for the unweighted data (both excluding junior high schools). There is a greater proportion of men at schools devoted principally to vocational education--vocational high schools, technical institutes, and vocational centers--than at schools with more comprehensive offerings--comprehensive high schools, and junior/ community colleges. The figures are: 75.0 percent against 57.0 percent in the unweighted data, and 91.2 percent against 60.7 percent in the weighted data.

- Blacks are well represented relative to their 11.1 percent of the population, making up 18.6 percent of the unweighted data, and 16.1 percent of the weighted data. The weighted and unweighted figures for Asians

Table C. 16

School Activity Indexes and Proportion of Nontraditional Teachers

School Activity Index	Correlation with Proportion of Men Teaching Traditionally Female Occupations	Correlation with Proportion of Women Teaching Traditionally Male Occupations
3-1 Internal Affirmative Action ($\bar{X}$ = 50.0; N = 100; S.D. = 5.0)	r = .1742, N = 88, p = .104	r = .2319, N = 94, p = .024
3-3 Awareness and Support Activities for Students ($\bar{X}$ = 49.9; N = 100; S.D. = 3.2)	r = .0677, N = 88, p = .530	r = .0650, N = 94, p = .534
3-4 Awareness and Support Activities for Older Women ($\bar{X}$ = 50.5; N = 91; S.D. = 9.0)	r = .0122, N = 80, p = .914	r = .0179, N = 85, p = .872
3-5 Teacher Awareness Activities ($\bar{X}$ = 50.0; N = 100; S.D. = 4.5)	r = .2331, N = 88, p = .014	r = .1556, N = 94, p = .134
3-7 Employer/Community Liaison Activities ($\bar{X}$ = 49.9; N = 100; S.D. = 4.4)	r = .0382, N = 88, p = .724	r = .0048, N = 94, p = .964
3-8 Title IX Activities ($\bar{X}$ = 50.1; N = 100; S.D. = 5.0)	r = .0564, N = 88, p = .602	r = .0228, N = 94, p = .828
Overall Index ($\bar{X}$ = 50.0; N = 100; S.D. = 3.0)	r = .1245, N = 88, p = .248	r = .0392, N = 94, p = .708

Table C. 17

Sex and Ethnic/Racial Distribution of Vocational School Counselors by Region

(Unweighted Data)

Region		Total by Sex		Total by Race					Total by Race and Sex								
		Male	Women	White	Black	Hispanic	Asian/ Pacific Islander	American Indian/ Native Alaskan	White Men	Black Men	Hispanic Men	Asian/ Pacific Islander Men	American Indian/ Native Alaskan Men	White Women	Black Women	Hispanic Women	Asian/ Pacific Islander Women
Total for U.S.	N	111	77	142	35	5	5	1	90	14	3	3	1	52	21	2	2
	%	59.0	41.0	75.5	18.6	2.7	2.7	.5	47.9	7.4	1.6	1.6	.5	27.7	11.2	1.1	1.1
North East	N	22	18	36	4	0	0	0	28	2	0	0	0	16	2	0	0
	%	55.0	45.0	90.0	10.0	0.0	0.0	0.0	50.0	5.0	0.0	0.0	0.0	40.0	5.0	0.0	0.0
North Central	N	30	16	38	7	1	0	0	26	3	1	0	0	12	4	0	0
	%	65.2	34.8	82.6	15.2	2.2	0.0	0.0	56.5	6.5	2.2	0.0	0.0	26.1	8.7	0.0	0.0
South	N	28	24	33	18	1	0	0	22	5	1	0	0	11	13	0	0
	%	53.8	46.2	63.5	34.6	1.9	0.0	0.0	42.3	9.6	1.9	0.0	0.0	21.2	25.0	0.0	0.0
West	N	31	19	35	6	3	5	1	22	4	1	3	1	13	2	2	2
	%	62.0	38.0	70.0	12.0	6.0	10.0	2.0	44.0	8.0	2.0	6.0	2.0	26.0	4.0	4.0	4.0

Table C. 17 (continued)

(Weighted Data)

Region		Total by Sex		Total by Race					Total by Race and Sex								
		Men	Women	White	Black	Hispanic	Asian/ Pacific Islander	American Indian/ Native Alaskan	White Men	Black Men	Hispanic Men	Asian/ Pacific Islander Men	American Indian/ Native Alaskan Men	White Women	Black Women	Hispanic Women	Asian/ Pacific Islander Women
Total for U.S.	N	12,465	7,440	15,492	3,204	706	314	187	10,230	1,684	145	219	187	5,263	1,521	561	95
	%	62.6	37.4	77.8	16.1	3.5	1.6	.9	51.4	8.5	.7	1.1	.9	26.4	7.6	2.8	.5
North East	N	2,500	1,552	3,502	558	0	0	0	2,143	365	0	0	0	1,359	193	0	0
	%	61.8	38.2	86.4	13.7	0.0	0.0	0.0	52.8	9.0	0.0	0.0	0.0	33.5	4.8	0.0	0.0
North Central	N	2,266	1,322	3,337	230	13	0	0	2,112	141	13	0	0	1,225	97	0	0
	%	63.2	36.8	93.0	6.6	.4	0.0	0.0	58.9	3.9	.4	0.0	0.0	34.1	2.7	0.0	0.0
South	N	3,110	2,098	3,535	1,544	129	0	0	2,479	502	129	0	0	1,056	1,042	0	0
	%	59.7	50.3	67.9	29.6	2.5	0.0	0.0	47.6	9.6	2.5	0.0	0.0	20.3	20.0	0.0	0.0
West	N	4,585	2,468	5,121	867	564	314	187	3,498	678	3	219	187	1,623	189	561	95
	%	65.0	35.0	72.6	12.3	8.0	4.5	2.7	49.6	9.6	0.0	3.1	2.7	23.0	2.7	8.0	1.3

Table C. 18

Sex and Ethnic/Racial Distribution of Vocational Counselor by Type of School

(Unweighted Data)

Type of School		Total by Sex		Total by Race					Total by Race and Sex								
		Male	Female	White	Black	Hispanic	Asian/ Pacific Islander	American Indian/ Native Alaskan	White Men	Black Men	Hispanic Men	Asian/ Pacific Islander Men	American Indian/ Native Alaskan Men	White Women	Black Women	Hispanic Women	Asian/ Pacific Islander Women
600 Schools Combined	#	211	77	242	33	3	3	1	90	14	3	3	1	52	21	2	2
	%	59.0	46.0	73.5	10.6	2.7	2.7	.3	47.9	7.4	1.6	1.6	.3	27.7	11.2	1.1	1.1
Vocational High School	#	6	4	6	3	1	0	0	4	1	1	0	0	2	2	0	0
	%	60.0	40.0	60.0	30.0	10.0	0.0	0.0	40.0	10.0	10.0	0.0	0.0	20.0	20.0	0.0	0.0
Comprehensive High School	#	96	57	102	23	1	3	0	62	9	0	3	0	40	14	1	3
	%	36.3	43.3	77.9	17.6	.0	3.0	0.0	47.3	6.9	0.0	3.3	0.0	30.3	10.7	.0	1.3
Technical Institute	#	3	3	3	3	.0	0	0	1	1	0	0	0	1	0	0	0
	%	75.0	25.0	50.0	50.0	0.0	0.0	0.0	25.0	50.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0
Junior/Community College	#	36	11	30	3	3	0	1	22	1	1	0	1	6	4	1	0
	%	59.3	40.7	66.7	50.3	11.1	0.0	3.7	44.4	3.7	3.7	0.0	3.7	22.2	14.0	3.7	0.0
Vocational Center	#	22	3	13	3	0	0	0	11	1	0	0	0	2	0	0	0
	%	81.7	14.3	81.9	7.1	0.0	0.0	0.0	78.6	7.1	0.0	0.0	0.0	14.3	0.0	0.0	0.0
Junior High School	#	0	2	1	2	0	0	0	0	0	0	0	0	1	1	0	0
	%	0.0	100.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0	0.0	0.0

Table C. 18 (continued)

(Weighted Data)

Type of School		Total by Sex		Total by Race					Total by Race and Sex								
		Men	Women	White	Black	Hispanic	Asian/ Pacific Islander	American Indian/ Native Alaskan	White Men	Black Men	Hispanic Men	Asian/ Pacific Islander Men	American Indian/ Native Alaskan Men	White Women	Black Women	Hispanic Women	Asian/ Pacific Islander Women
All Schools Combined	#	12,469	7,440	15,492	3,306	706	314	107	10,230	1,604	143	119	107	5,143	1,521	561	95
	%	62.6	37.4	77.8	16.1	3.5	1.6	.5	51.4	8.3	.7	1.1	.5	26.4	7.4	1.0	.3
Vocational High School	#	222	20	221	20	13	0	0	196	13	13	0	0	25	25	0	0
	%	91.6	10.4	91.6	13.0	4.6	0.0	0.0	72.1	4.8	4.0	0.0	0.0	9.2	9.2	0.0	0.0
Comprehensive High School	#	9,230	5,720	12,196	2,321	126	314	0	7,797	1,211	0	119	0	4,999	1,110	126	95
	%	64.7	38.3	81.5	15.3	.0	2.1	0.0	53.1	8.1	0.0	1.3	0.0	29.4	7.4	.0	.6
Technical Institute	#	436	76	170	330	0	0	0	104	230	0	0	0	76	0	0	0
	%	85.2	14.8	33.2	64.0	0.0	0.0	0.0	20.3	64.7	0.0	0.0	0.0	14.9	0.0	0.0	0.0
Junior/Community College	#	1,985	1,480	2,120	301	369	0	107	1,458	129	132	0	107	670	373	437	0
	%	56.3	43.7	62.9	14.0	16.0	0.0	3.3	43.1	3.0	3.9	0.0	3.3	19.0	11.0	12.9	0.0
Vocational Center	#	676	2	677	1	0	0	0	675	1	0	0	0	2	0	0	0
	%	99.7	.3	99.0	.1	0.0	0.0	0.0	99.4	.1	0.0	0.0	0.0	.3	0.0	0.0	0.0
Junior High School	#	0	304	91	13	0	0	0	0	0	0	0	0	91	13	0	0
	%	0.0	100.0	88.0	11.0	0.0	0.0	0.0	0	0	0	0	0	87.5	11.5	0.0	0.0

and Pacific Islanders are 2.7 percent and 1.6 percent; for American Indians and Native Alaskans the figures are 2.7 percent and 1.6 percent. These figures compare favorably with population values of .67 percent and .39 percent for these groups, respectively. Hispanics represent 27 percent of feeder school counselors sampled (3.5 percent for the weighted data); their proportion in the population is about 5.1 percent.

Thus, men are in the majority among vocational school counselors, especially in those schools that are strictly vocational. When analyses of background experience or training were made, there was little reason to conclude that counselors of one sex are better prepared. Although a few differences in preparation appeared, they represented a relatively small proportion of the comparisons made, and did not consistently favor members of one sex.

Characteristics of Feeder School Counselors[14]

Tables C.19 to C.20 show the number of feeder school counselors by race and sex, in different regions and types of schools. The "type of school" shown in some of these tables, and mentioned in the discussion refers to the type of school in which the feeder school counselor is located, not the type of school selected in the sample, into which the counselor places students. A review of these tables reveals the following:

- Overall, there are about an equal number of men and women among feeder school counselors. This varies dramatically from region to region from a low 27.3 percent male in the South, to 72.9 percent male in the North East.

  Variation among types of schools is from 40.0 percent white male to 100.0 percent white male, but the extremes are based on five and three cases respectively; for school types with over seven counselors, the figures are 43.3 percent and 52.9 percent for junior high schools and comprehensive high schools, respectively.

- Blacks are represented slightly less than in the population as a whole--9.7 percent as against 11.1 percent. For Asians and Pacific Islanders, and American Indians and Native Alaskans, the figures are, respectively, .70 as against .67, and .70 as

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14. A "feeder school counselor" is a counselor working at a school from which students attending one of the schools in the sample are drawn.

Table C. 19

Sex and Ethnic/Racial Distribution of Feeder School Counselors by Region

CENSUS REGION		Total by Sex		Total by Race					Total for Each Sex and Race						
		Men	Women	White	Black	Hispanic	Asian	American Indian	White Men	Black Men	Asian Men	American Indian Men	White Women	Black Women	Hispanic Women
Overall	N	74	70	126	14	2	1	1	70	2	1	1	56	12	2
	%	51.4	48.6	87.5	9.7	1.4	0.7	0.7	48.6	1.4	0.7	0.7	38.9	8.3	1.4
North East	N	22	7	27	2	0	0	0	21	1	0	0	6	1	0
	%	75.9	24.1	93.1	6.9	0.0	0.0	0.0	72.4	3.4	0.0	0.0	20.7	3.4	0.0
North Central	N	25	14	36	3	0	0	0	25	0	0	0	11	3	0
	%	64.1	35.9	92.3	7.7	0.0	0.0	0.0	64.1	0.0	0.0	0.0	28.2	7.7	0.0
South	N	15	40	45	9	1	0	0	14	1	0	0	31	8	1
	%	27.3	72.7	81.8	16.4	1.8	0.0	0.0	25.5	1.8	0.0	0.0	56.4	14.5	1.8
West	N	12	9	18	0	1	1	1	10	0	1	1	8	0	1
	%	57.1	42.9	85.7	0.0	4.8	4.8	4.8	47.6	0.0	4.8	4.8	38.1	0.0	4.8

Table C. 20

Sex and Ethnic/Racial Distributions of Feeder School Counselors by Types of Schools

		White Men	Black Men	Asian Men	American Indian Men	White Women	Black Women	Hispanic Women	Total by Sex: Men	Total by Sex: Women	Total by Race: White	Total by Race: Black	Total by Race: Hispanic	Total by Race: Asian	Total by Race: American Indian
All Schools Combined	N	70	2	1	1	56	12	2	74	70	126	14	2	1	1
	%								51.4	48.6	87.5	9.7	1.4	.7	.7
Vocational High School	N	3	0	0	0	0	0	0	3	0	3	0	0	0	0
	%	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0
Comprehensive High School	N	36	0	0	0	26	6	0	6	32	62	6	0	0	
	%	52.9	0.0	0.0	0.0	38.2	8.8	0.0	52.9	47.1	91.2	8.8	0.0	0.0	0.0
Technical Institute	N	1	0	0	0	0	0	0	1	0	1	0	0	0	0
	%	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0
Junior/ Community College	N	1	0	0	1	2	0	1	2	3	3	1	1	0	0
	%	20.0	0.0	0.0	20.0	40.0	0.0	20.0	40.0	60.0	60.0	20.0	20.0	0.0	0.0
Vocational Center	N	5	1	0	0	1	0	0	6	1	6	1	0	0	0
	%	71.4	14.3	0.0	0.0	14.3	0.0	0.0	85.7	14.3	85.7	14.3	0.0	0.0	0.0
Junior High School	N	24	1	1	0	27	6	1	26	34	51	7	1	1	0
	%	40.0	1.7	1.7	0.0	45.0	10.8	1.7	43.3	56.7	85.0	11.7	1.7	1.7	0.0

against .39. Hispanics make up 1.4 percent of the feeder school counselors sampled, as against 5.1 percent in the population. In summary, men and women are about equally represented among feeder school counselors. The situation varies substantially, however, from region to region and by type of school.

Summary

The following are the major findings presented concerning enrollment and staffing patterns:

- In 1978, 7.8 percent of the enrollees in traditionally male occupational areas were women, and 10.9 percent of the enrollees in traditionally female occupational areas were men.

- Since 1972, female enrollment in traditionally male technical occupations has increased approximately 3 percent; female enrollment in traditionally male agriculture occupations has increased approximately 8 percent; and there has been virtually no change in traditionally male trade and industrial areas.

- Since 1972, the percent of females in the traditionally female occupational areas has increased: Business and office shows approximately a 5 percent increase; trade and industrial, a 6 percent increase; and health, virtually no change. There has been approximately a 10 percent decrease in the female enrollments in traditionally female home economic areas.

- Fifty-nine percent of the counselors interviewed at the schools sampled were men, as were about 51 percent of feeder school counselors.

- Persons of one or the other sex predominate as teachers in each occupational area. Comparison of data collected in the present study with data collected in 1974 by the Office of Civil Rights show no movement away from traditional patterns.

- The age of traditional and nontraditional students differs by less than a year.

- There are no major differences between traditional and nontraditional students in terms of socioeconomic status as measured by occupational level of parents.

There is slight evidence that nontraditional males have mothers with slightly higher socioeconomic status.

- Overall, nontraditional students appear to be more ambivalent about their plans for the future. Traditional students are more likely to plan to enter the field for which they are training.

THE EFFECTS OF SCHOOL CURRICULUM ON YOUNG WOMEN

by

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THE EFFECTS OF SCHOOL CURRICULUM ON YOUNG WOMEN

Available information on the status of women in American society clearly shows some effects of sex-role stereotyping and occupational segregation. As Steiger and Cooper[1] point out, more than 25 percent of all working women could be found in only five occupations: secretary, retail sales clerk, bookkeeper, waitress and public elementary school teacher. Half of all women workers were employed in just 17 occupations (out of more than 400), while one needed 63 occupations to account for half of male workers. Even so, the role of secondary education in relation to the educational and vocational development of young women has not received significant attention, seemingly because of a lack of interest.

In the literature on the status of women there is an emphasis upon those who complete college, especially professional women, and in the literature on secondary education there is an emphasis on the effects of vocational education among males. Yet the fact is that fully 80 percent of all female enrollments in federally funded vocational education in 1972 were in homemaking and office fields. This suggests that educational policies at the high school level may contribute to both sex-role stereotyping and occupational segregation for millions of women.

To gain needed insights into the effects of high school curriculum upon young women, this study investigates correlates and consequences of high school curriculum through analyses of a large number of criterion measures grouped into three domains. First is the process of curricular choice (or assignment) and includes as topics of interest: educational goals, plans for work after leaving school, occupational aspirations, and attitudes toward high school. Second is persistence in school, including not completing school, the transition to college, perceived adequacy of high school preparation for work, and the extent (and nature) of any training received outside of regular school. Third is labor market experience, including extent of work, unemployment, occupational assignment, and economic measures.

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1. J.M. Steiger and S. Cooper, The Vocational Preparation of Women. A Report of the Secretary's Advisory Committee on the Rights and Responsibilities of Women, U.S. Department of Health, Education, and Welfare. (Washington: Government Printing Office, July 1975.)

The Data Base

The National Longitudinal Surveys of Labor Market Experience (NLS) includes information on over 5,000 males aged 14 to 24 in 1966 and over 5,000 females aged 14 to 24 in 1968. This project is sponsored by the U.S. Department of Labor and is conducted by the Center for Human Resource Research at The Ohio State University and the Bureau of the Census. Seven followup surveys have been conducted to date with the sample of females; additional followups are being planned at this writing, as well as the drawing of new age-sex panels. For both the males and females, a special mailed survey of their high schools was also conducted in 1968. The field work consists primarily of face-to-face personal interviews with Census Bureau staff; response rates have remained high. Of the 5,159 women interviewed initially in early 1968, about 90 percent were reinterviewed in 1972--the fourth followup. Another feature of the NLS should not be overlooked. The initial sampling design included provision for oversampling the black population to facilitate analysis within or between whites and blacks. More complete information on the NLS is contained in the data bank handbook.[2]

Usage of the NLS data has been extensive, particularly by economists, and includes three major studies concerning vocational education. The first was completed by Stromsdorfer for the National Planning Association,[3] and results are also reported in Lecht.[4] It confined attention to males and touched upon retention in school, transition to college, and postschool economic outcomes. In Grasso,[5] attention is also confined to males, and a review and critique of Stromsdorfer's economic analysis is included. In Grasso and Shea[6]

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2. Center for Human Resource Research, The National Longitudinal Surveys Handbook. (Columbus: The Ohio State University, 1976, revised.)

3. E.W. Stromsdorfer, Review and Synthesis of Cost-Effectiveness Studies of Vocational and Technical Education. (Columbus: Center for Vocational and Technical Education, The Ohio State University, 1972.)

4. L.A. Lecht, Evaluating Vocational Education: Policies and Plans for the 1970's. (New York: Praeger, 1974.)

5. J.T. Grasso, The Contributions of Vocational Education, Training and Work Experience to the Early Career Achievements of Young Men. (Columbus: Center for Human Resource Research, The Ohio State University, 1975.)

6. John T. Grasso and John R. Shea, forthcoming, 1979.

attention is paid specifically to males and females, and to blacks and whites, with respect to curricular differences in retention and persistence in school, and a wide variety of postschool outcomes. The present paper reports on the findings for women from this body of research.

Female Students

Reducing sex discrimination in education is not just a good thing to do: It is required by law. Title IX of the Education Amendments of 1972 provides that "no person . . . shall, on the basis of sex be excluded from participation in, or denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance."

In fiscal year 1972, the most recent year for which enrollment information by sex was required of all States, 6,422,115 women enrolled in vocational programs constituted 56 percent of the total. Two of every five female enrollments in fiscal year 1975 were in consumer and homemaking subjects, and the vast majority of these were taking courses for nongainful work. Relatively few of them (one in 10) were in programs for gainful occupations such as dietician or day-care aide.

Within the Federal-State vocational education statistics, enrollments are tallied in 130 instructional program areas. Ninety-seven of these specialties in 1972 were dominated by ne sex (i.e., at least three-quarters of the students were male, or at least three-quarters were female). Women were a majority in 33 wage earning program areas--nearly all in office work, distributive education (sales and related), and allied health.[7]

Sex segregation is evident in data on enrollments by major program area. Although women accounted for about half of enrollments in 1972, the only major program reflecting this division by sex was distributive education (see Table 1).

Sex segregation is also shown in data on enrollments by specialty area. A review of the 15 largest instructional programs for males and females in 1972 shows that, except for certain business and commercial programs, the largest programs for women are related almost one-to-one with the occupations

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7. M. Steele, Women in Vocational Education. Project Baseline Supplemental Report. (Flagstaff, Ar.: Northern Arizona University, Project Baseline, October 30, 1974.)

Table 1

Enrollments in Vocational Education Program by Sex, 1972

Program	Total	Percent Total	Female	Male
Agriculture	896,460	7.7	5.4	94.6
Distribution	640,423	5.5	45.3	54.7
Health	336,652	2.9	84.7	15.3
Home Economics	3,445,698	29.7	91.6	8.4
Office	2,351,878	20.3	76.4	23.6
Technical	337,069	2.9	9.8	90.2
Trades and Industrial	2,397,968	20.7	11.7	88.3
Special programs (Disadvantaged, handicapped, etc.)	1,304,619	11.2	44.7	55.3

Source: U.S. Office of Education publication, "Summary Data, Vocational Education, Fiscal Year 1972."

where women are concentrated in large numbers. The specialty areas with substantial numbers of men generally contain only negligible proportions of women. These data are viewed with alarm by those who note substantial earnings differences between male- and female-dominated occupations in the economy. It seems logical to hypothesize that vocational education contributes to sex inequalities in the labor market through sex segregation in enrollments, which leads to occupational segregation and earnings differentials.

Sex-segregated enrollments in high schools with vocational programs are also reflected in data from the National Longitudinal Surveys. Among high school seniors, for instance, 15 percent of men but 23 percent of women said they were enrolled in either a vocational or commercial program of study (see Table 2). Women are heavily concentrated in white-collar, clerical programs, while men in occupational areas were congregated in blue-collar specialties. Relatively few males report a white-collar curriculum and, for these few, the precise program area is probably distributive education (i.e., sales or marketing) rather than office or clerical work. Because of these differences, as well as for ease of exposition, we hereafter maintain the commercial designation when speaking of men who report such a program, and vocational for the other specialties. However, for women we use business and office in referring to the white-collar, clerical programs reported by women, and vocational for other occupational studies.

Interestingly, women in the NLS failed to report home economics as a program of study. In 1968, home economics had the largest number of secondary-level enrollments in federally assisted vocational programs: Nearly 1.5 million.[8] However, a negligible proportion of young women in the NLS report home economics as their curriculum: 0.6 percent of those enrolled in grade 10 to 12 in 1968. Thus, many students take home economics courses without perceiving them as their program of study.

Also on the basis of NLS estimates, approximately one million girls in grades 9 to 12 in 1968 are in a business or clerical program, a number not dissimilar from the number of federally assisted program enrollments in the service area

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8. K.A. Simon and W.V. Grant, Digest of Educational Statistics (1972 ed.). (Washington, D.C.: U.S. Department of Health, Education, and Welfare, 1973.), p. 43.

Table 2

Curriculum by Grade in School, Sex, and Race: Men (1966) and Women (1968) 14 to 24 Years Old, Enrolled in Grades 9-12

(Numbers in Thousands)[a]

	Whites				Blacks			
Grade	9	10	11	12	9	10	11	12
	Men							
N[b]	840	1,493	1,475	1,315	153	212	195	147
Percent:[c]								
Vocational	5	8	12	11	6	13	18	18
Commercial	2	2	4	3	3	5	4	6
General	57	48	42	39	82	64	48	50
College preparatory	36	43	43	48	9	18	31	29
	Women							
N[b]	1,488	1,780	1,420	1,164	215	229	176	180
Percent:[c]								
Vocational	1	1	2	4	4	7	2	2
Business and office	8	15	19	19	5	15	18	19
General	64	48	32	31	78	54	51	56
College preparatory	27	36	46	46	14	25	29	24

Source: National Longitudinal Surveys.

a. In this table and throughout the paper, numbers that are shown "in thousands" are based on weighted NLS data.
b. Excludes those for whom curriculum was not ascertained.

designated as "business and office": 1.1 million.[9] However, in addition to the women reporting a business and office program, well over half of the remainder of NLS female respondents--or over 2.6 million more high school girls--report having taken one or more courses in typing or shorthand. Thus, while 99 percent of high school business or office seniors say they had such course work, the same is true for about three-quarters or more of the remaining senior girls (see Table 3).

Moreover, while black girls were less likely overall to take such courses than white, nearly all of the difference by race is attributable to two factors. First, there was a much higher proportion of black than white girls in a general rather than a college preparatory program (e.g., 56 percent of black high school senior girls were in the general track, as compared to 31 percent of white). Second, any young woman in the general track has a lower than average probability of having any typing or shorthand (again, see Table 3).

Status and Ability Differences

Several existing studies contain information on the characteristics of students in the different high school curricula. On the basis of Project Talent data, Evans and Galloway report that, on average, the vocational student ranks below the student in the general track with respect to socioeconomic level and ability, and that the college preparatory student ranks highest of all.[10] Table 4, derived from published Talent data, reveals that male high school freshmen who were pursuing or expecting an occupational curriculum ranked below their peers in scholastic aptitude. However, in the data for females, young women in business and office programs do not conform to this trend. While about 40 percent of girls in the general track ranked above the overall median on the aptitude scale, this was true of about 45 percent of girls in business and office curricula.

NLS data on high school students in 1968 are consistent with the Talent data. Young women with high scholastic aptitude and/or from high socioeconomic-level families are very likely to enroll in the college preparatory curriculum (see Table 5).

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9. Ibid., p. 43.

10. R.N. Evans and J.D. Galloway, "Verbal Ability and Socioeconomic Status of 8th and 12th Grade College Preparatory, General, and Vocational Students," Journal of Human Resources (1973) 8(1).

Percentage of Women (1968) 14 to 24 Years Old Who Completed One or More Typing Courses, by Enrollment Status, Highest Year of School Completed, and Race

	Total 9-12	Grade enrolled 9	10	11	12	Not in high school Total	Dropouts	Graduates[a]
				Whites				
All curricula (average)	55	18	50	72	82	83	63	87
Vocational	67	b	b	b	b	52	b	87
Business and office	85	24	82	99	99	99	93	99
General	52	20	50	86	87	79	57	89
College preparatory	45	12	34	51	71	79	63	79
				Blacks				
All curricula (average)	49	15	42	68	75	65	42	76
Vocational	47	b	b	b	b	48	b	61
Business and office	86	b	79	92	99	92	78	97
General	41	12	31	71	69	59	38	70
College preparatory	47	5	42	51	74	66	b	76

Source: National Longitudinal Surveys.

a. Includes high school graduates enrolled in college in 1968.

b. Percent not shown; base less than 25 sample cases.

Table 4

Academic Aptitude and by Program of Study, by Sex: 9th Grade Students, 1960

Current or Expected Curriculum	Percent of Students Above Total Population Median on Academic Aptitude Scale	
	Males	Females
College preparatory	77.4	74.4
General	44.4	40.1
Business and Office	23.4	45.3
Vocational	33.3	25.9
Agriculture	31.1	7.9

Source: Project Talent data in J.T. Flanagan, The Identification, Development, and Utilization of Human Talents. (Pittsburgh: University of Pittsburgh, 1964.)

Table 5

Distribution of Female Students by Curriculum, Race, Socioeconomic Level and Scholastic Aptitude: Women Enrolled in Grades 10-12 in 1968 (Percentages)

	Whites' Scholastic Aptitude			Blacks' Scholastic Aptitude		
	High	Mid	Low	High	Mid	Low
	Percent in College Preparatory					
High Socioeconomic Level	76	64	40	a	a	a
Mid Socioeconomic level	59	37	10	a	69	20
Low Socioeconomic level	34	16	7	a	22	20
	Percent, excluding College Preparatory, in Occupational Curricula (Percentage)					
High Socioeconomic Level						
Business, office	0	9	0	a	a	a
Vocational	16	25	27	a	a	a
Mid Socioeconomic Level						
Business, office	7	0	8	a	a	2
Vocational	38	36	28	a	a	39
Low Socioeconomic Level						
Business, office	a	7	1	a	0	7
Vocational	a	47	32	a	49	18

a. Percent not shown; based on less than 25 sample cases.

This Table also shows that the distribution of women who were enrolled in the remaining curricula, by socioeconomic level and aptitude, follows a varied pattern.

Attitudes Toward School

In the NLS base year surveys, the youth were asked about their overall attitude toward high school: "All things considered, how do you feel about your high school experience? Do you like it very much? Like it fairly well? Dislike it somewhat? Dislike it very much?" Girls were more likely to "like it very much" than boys (i.e., 54 percent versus 44). Within each sex group, those in the college preparatory curriculum were more likely than average to say so. Among women, those in occupational curricula were as likely to like school as those in the general track (i.e., 51 percent of business and office students, 48 percent of other vocational students and 50 percent of general students). This is in contrast with findings for males, where occupational students liked school less than did the general students.

Educational Aspirations

Data on educational aspirations of female high school students show striking differences by curriculum. First, the overall picture: 48 percent of the whites and 50 percent of the blacks said they "would like to get" four or more years of college (Table 6). Nearly one in four girls would like 2 years of college. Thus about three-fourths of all the females were hoping for postsecondary education.

By curriculum, two observations are worth making. First, black girls within each curricular category showed higher aspirations than whites. Second, of the business and office students, blacks were relatively unlikely to desire a four-year college program, and whites were remarkably unlikely to do so.

Educational goals are fostered, in part at least, by encouragement and support from parents, teachers, and peers, and the women were asked about some of these influences. Those in a college preparatory program seem to have been the beneficiaries of high levels of encouragement and support in comparison with classmates. For example, 77 percent of the white girls in academic programs and 71 percent of the black reported that they believed their parents wanted them to achieve four or more years of college. The same was true of only 38 and 52 percent of the white and black girls in a general program, and of even smaller proportions of youngsters in occupational curricula. Among business and office students, the figures for white and black women are 26 and 37 percent, respectively; among other vocational students, 17 and 20.

Table 6

Educational Aspirations, by Curriculum and Race: Women (1968) Enrolled in Grades 10-12, Base Year

(Number in Thousands)

	Number[a]	Percentage[c] 12 or less	College 2	College 4+
Whites				
Vocational	96	b	b	b
Business and office	751	52	36	12
General	1,663	40	30	30
College preparatory	1,830	6	16	79
Total (or average)	4,364	28	25	48
Blacks				
Vocational	22	b	b	b
Business and office	100	35	38	28
General	312	35	22	42
College preparatory	149	4	13	84
Total (or average)	584	28	22	50

a. Excludes less than 1 percent for whom aspiration was not ascertained.

b. Percent not shown; base less than 25 sample cases.

c. Detail may not add to 100 percent due to rounding.

Occupational Goals

Young women were asked about their plans at age 35. After a lead-in, "Now I would like to talk to you about your future plans," the interviewer asked: "What would you like to be doing when you are 35 years old?" If the respondent said "working," which was true of almost one-fourth of white students and almost one-half of black, she was asked to name the kind of work. If she said "married, keeping house, raising a family," or the like which was true of about two-thirds of whites and one-third of blacks, a further question was asked: "Sometimes women decide to work after they have been married for a while. If you were to work, what kind of work would you prefer?" Even after this, some expressed no occupational aspiration (e.g., "Don't plan to work").

The pattern of responses, conceived as plans for work, was used for an index of intentions to work at age 35. Results with the index reveal substantial differences between the races, for young black women were clearly planning for work more than were young whites. However, there seem to be no differences by high school curriculum. This suggests that, although young women in vocational programs may be conceived as having a stronger orientation to a career than their peers, the effects of other factors on plans at 35 must be taken into account, such as higher education, marriage and motherhood. At the same time, enrollment in an occupational curriculum during high school may simply not constitute evidence of intentions of working at age 35. For example, those in business and office programs may be developing skills primarily for use in the period immediately following high school.

Looking at those female students who specified a type of work desired at age 35, it is clear that occupational goals differ by curriculum. While 45 percent of all high school females desire professional and technical work, including teaching, this is true of only 9 percent of business and office students, but of over 70 percent of college preparatory students (see Table 7). In addition, while 37 percent of all high school females want clerical work, including secretarial jobs, this is true of only one in six college preparatory females, but of more than three out of four business and office students.

In view of these differences, it is not surprising to find differences in other measures related to the occupation. Business and office students desire jobs that are stereotypically "female" jobs: 69 percent of them desire jobs in which over 80 percent of incumbents are female, while only 57 percent of other vocational students and only 54 percent of general students desire such heavily stereotypic jobs. The jobs wanted by

Table 7

Occupation Desired at Age 35 by High School Curriculum:
Females Enrolled in Grades 10-12 in 1968

Percent in Selected Categories	High School Curriculum				
	Total	Vocational	Business, Office	College Preparatory	General
Major category:					
Professional, technical, kindred	45	47	9	74	33
Clerical, kindred	37	11	77	16	40
Service workers	10	18	7	5	15
All other categories	8	24	7	5	12
Sex-stereotypic:					
Female jobs (80% or more of workers in the occupation are females)	53	57	69	46	54
Median occupational earnings:					
$8,000 or more	10	15	2	15	9
$6,000 to $8,000	28	34	9	41	24
$4,000 to $6,000	57	26	86	42	60
Under $4,000	5	25	2	2	7
Weighted number	4,978	119	861	1,989	1,983

business and office students are also low paying in comparison with jobs desired by their peers: 88 percent of business and office students desire jobs typically paying less than $6,000 per year, while the analogous figures for other vocational and general students are 51 and 61 percent, respectively.

However, regardless of curriculum, the jobs desired by these young women strongly suggest occupational segregation by sex. Occupational goals were coded in the NLS according to the 1960 Census classification scheme. Although there are 297 possible codes, only the nine shown below are needed to account for over two-thirds of the job preferences of the girls in grades 10 to 12 in 1968.

	Percent
Secretary (Code 342)	21
Teacher (182,183,184)	20
Clerical and kindred, not elsewhere classified (370)	9
Professional nurse (150)	8
Hairdresser (843)	5
Sales clerk (394)	4
Social and welfare workers (171)	2
Total, top 9	69

Moreover, despite great publicity about women's role in recent years, these 1968 NLS data do not seem to be out of date. As reported in a recent Gallup Youth Survey, the top 10 career preferences of teenage girls skill include: secretary, teacher, nurse, social worker, and cosmetologist/hairdresser, "other medical," veterinarian, fashion design/modeling, doctor, and business. By contrast, the top ten choices of boys, in order, were: skilled worker, engineer, lawyer, teacher, professional athlete, musician, architect, farmer, doctor, and military.[11]

In the national survey of 32,000 youth sponsored by the American College Testing Program in Spring 1973 [12] the "preferred occupations" of girls were also found to be more restricted than boys' and mirrored the present "reality" of the

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11. The Kappan, October 1976.

12. D.J. Prediger, J.D. Roth, and R.J. Noeth, "Career Development of Youth: A Nationwide Study," Personnel and Guidance Journal 53 (2), October 1974, pp. 99.

labor market. When occupational goals were categorized into 25 "job families" by the ACT investigators, they found that ". . . over half of the 11th-grade girls choose occupations falling in only 3 of the 25 job families: clerical and secretarial work, education and social services, nursing and human care."[13] Only 7 percent of the girls aspired to occupations falling into the "technologies and trade" cluster of job families, where nearly half of the boys' preferred occupations were located. (Similarly, only 7 percent of the boys aspired to occupations in the 3 job families in which the girls' preferences centered.)

Recent efforts to expand career horizons among women may yield less than expected. A 1976 study of adolescent girls in Indiana discovered that, even while believing that girls now could enter many of the occupations previously dominated by males, the respondents were still more likely to desire the traditionally female careers.[14] Another study conducted during the 1974-75 school year sought to locate 10 "pacesetter" secondary schools, those that had succeeded in attracting young women into nontraditional areas. The study could not find any "pacesetter" schools. The authors reported that they did locate some high schools enrolling at least five females in one or more nontraditional fields, but even in these cases the females had not "enrolled in 'hard core' male programs (such as construction, metalworking, or auto mechanics), but in 'gray' areas such as vocational agriculture, printing, industrial chemistry, or television arts."[15]

Persistence in High School

It has frequently been argued by proponents of vocational education that these programs promote completion of high school. To investigate this question with the national data, we performed a multiple regression relating high school completion to curriculum, aptitude, socioeconomic level, and

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13. Ibid., p. 100.

14. M.H. Mitchell, Attitudes of Adolescent Girls Toward Vocational Education. Final Report to the State Board of Vocational and Technical Education of Indiana. (Bloomington: Indiana University, June 1977.)

15. J.J. Kaufman and others. Attempts to Overcome Sex Stereotyping in Vocational Education. (University Park, Pa.: Institute for Research on Human Resources, The Pennsylvania State University, November 1976), p. 1.

type of community, using cross-sectional data for NLS females out of school at the 1972 followup survey. Attention was restricted to those who completed at least 10 years of schooling, to minimize the possibility of associating effects to the general track by default. Results with such a model show positive effects on the completion of high school for both business and office programs and for other vocational programs, but only for white females. Among the black females, the occupational program effects are positive, but not significant (see Table 8).

Pregnancy and marriage among NLS young women rank as significant reasons for ending (or, at least, interrupting) schooling, as evidenced in data for young women out of school in 1968, using a measure of the coincidence of the birth of a first child and schooling termination. Over one-third of NLS female high school dropouts are accounted for by this measure (see Table 9). Interestingly, college preparatory high school dropouts were more likely to leave school for marriage and/or pregnancy than were those from other curricula, presumably because they were less likely to leave for other reasons. At each attainment level, the percentage of black women who bore a child within 1 year of leaving shcool was higher than for whites. These findings emphasize that pregnant teenagers and young mothers comprise a special category of those with special needs.

The point is that many pregnant girls are advised (or required) to stay away from school; poor options are offered (e.g., one hour of homebound instruction per week); and should a girl wish later to reenter school, she is often reassigned to a continuation or adult school, often with a limited evening program at some distance from home. Many of these young women have a very great need to acquire education or training which will allow them to support themselves and their children.

Educational Attainment

While the preceding section addressed the relationship between curriculum and dropping out of high school, this part addresses influences on educational attainment. Regressions are performed with three alternative attainment criterion measures and a common set of independent variables; scholastic aptitude, socioeconomic origin, and a set of dummy variables for both area of residence at age 14 and most recent high school curriculum. The residence variables are: (1) A14R, lived on a farm or ranch or elsewhere in the country; (2) A14T, lived in a town or small city under 25,000 population; and (3) A14CTY, lived in a large city of 100,000 or more. (The reference group, is A14S, having lived in a suburb of a large city

Table 8

High School Completion: Regression Results[a] on Cross-Sectional Data for Females Out-of-School in 1972 With at Least 10 Years of Schooling Completed (Standard Errors in Parenthesis)

Explanatory Variables and Statistics	White Females	Black Females
Scholastic aptitude	.002**	.0015
	(.0005)	(.0012)
Socioeconomic origins	.02**	.03**
	(.003)	(.009)
Vocational [b]	.08*	.04
	(.045)	(.09)
Business and office[b]	.09**	.03
	(.02)	(.04)
College preparatory[b]	.10**	.11**
	(.02)	(.04)
Rural[c]	.05**	.06
	(.02)	(.05)
Small town[c]	.04**	.01
	(.01)	(.05)
Large city[c]	.02	-.05
	(.02)	(.04)
Constant	.40	.45
R^2	.09	.04
F	27.91**	3.94**
N	2.289	546
Mean (Y)[a]	.91	.85
SD (Y)[a]	.28	.36

a. Dependent variable is coded "1" for those who had completed at least the twelfth grade, and "0" otherwise.

b. Reference group: general curriculum.

c. Reference group: respondents living in small city or suburb at age 14.

* Significant at .10 level (2-tailed t-test, except for scholastic aptitude and socioeconomic origin).

** Significant at .05 level.

Table 9

Percentage of School Leavers Who Bore a Child Within 1 Year of Leaving School, by Race, Highest Year of School Completed, and High School Curriculum (Most Recent); Women (1968) Not Enrolled in School, Base Year

	Highest year completed		
	10 & 11	12	13 to 15
Whites (average)	35	11	16
Vocational	a	a	a
Business and office	34	8	a
General	32	11	18
College preparatory	47	14	17
Blacks (average)	44	28	22
Vocational	a	32	a
Business and office	31	23	a
General	41	29	28
College preparatory	a	29	21

a. Percent not shown: base less than 25 sample cases.

or in a city of 25,000 to 100,000 population.) Curriculum is also represented by a set of dummy variables: (1) VOC, vocational; (2) COM, commercial; and (3) CP, college preparatory. The reference category is GEN, or general curriculum.

The dependent variables include two dichotomous measures: (1) 13+, whether a person completed 13 or more years of regular schooling; and (2) 13+/TNG, whether the respondent completed 13 or more years or had some postschool training. The third dependent variable is HSC, highest year of school completed, measured in continuous form. Because the analysis is restricted to respondents who had completed at least 10 years of education, this ranges from 10 to 20.

The regression results are presented for women in Table 10. Three variables dominate the results: Scholastic aptitude, socioeconomic origin, and whether enrolled in a college preparatory program in high school. Each positively influences attainment.

Concerning completion of one or more years of college, three of the four occupational curriculum coefficients are negative and significant: -.12 and -.14 for B&O (business and office) among whites and blacks, respectively; and -.19 for vocational programs among black young women. Interpreted literally, these results would mean that these students from occupational curricula are between 12 and 19 percent less likely than those from the general curriculum (i.e., the reference group in this model) to complete any years of college. These results suggest that the occupational programs may have an independent, net negative impact on attainment of formal postsecondary schooling.

Concerning completion of any years of college or any training outside regular school, none of the occupational curriculum coefficients is statistically significant (i.e., not different from the effects of the general track). Thus, expanding the definition of "attainment" to include nonformal postsecondary education or training erases the negative result previously obtained for occupational studies. Indeed, it also weakens the effects of origins and aptitudes, as witnessed by the smaller coefficients here than before, and reduces the potency of the model generally, as shown in the much lower percentages of variance explained (i.e., R^2).

With respect to the number of years of formal schooling completed, none of the occupational coefficients is significant. Thus, even though occupational curricula are associated with lower probabilities of women completing any years of college, their positive influence on completing high school that was

Table 10

Educational Attainment and Post-School Training:
Regression Results for Women (1972)[a]
(Standard Errors in Parenthesis)

Explanatory Variables and Statistics	Years of Schooling or Training					
	Whites			Blacks		
	Y = 13+ (1,0)	Y = 13+/ Training (1,0)	Y = Highest Year Completed	Y = 13+ (1,0)	Y = 13+/ Training (1,0)	Y = Highest Year Completed
Scholastic Aptitude	.006**	.004**	.03**	.007**	.003	.02**
	(.001)	(.001)	(.00)	(.001)	(.002)	(.00)
Socioeconomic Origin	.06	.04**	.21**	.06**	.05**	.17**
	(.005)	(.006)	(.02)	(.01)	(.01)	(.03)
Vocational[b]	.03	.03	.30	-.19**	-.008	-.30
	(.06)	(.08)	(.26)	(.09)	(.12)	(.30)
Business and Office[b]	-.12**	.02	-.09	-.14**	.02	-.24
	(.02)	(.03)	(.08)	(.04)	(.06)	(.15)
College Preparatory[b]	.33**	.24**	1.27**	.26**	.18**	.85**
	(.02)	(.03)	(.09)	(.05)	(.06)	(.17)
Rural[c]	.08**	-.02	.35**	.09**	-14**	.32*
	(.02)	(.03)	(.10)	(.05)	(.06)	(.17)
Town[c]	.04*	-.05*	-.15*	-.02	-.12*	-.11
	(.02)	(.03)	(.09)	(.05)	(.07)	(.18)
City[c]	.06**	.04	.25**	-.05	-.06	-.32**
	(.02)	(.03)	(.10)	(.05)	(.06)	(.16)
Constant	-1.11	-.21	7.[illegible]	-.92	-.03	9.24
R^2	.41	.16	.36	.20	.10	.20
F	200.48**	45.51**	134.75**	29.47**	6.91**	15.23**
N	2,289	1,927	1,927	546	447	447
Mean (Y)	.40	.67	12.77	.30	.60	12.26
SD (Y)	.49	.47	1.76	.46	.40	1.35

a. Restricted to those out of school who had completed 10 or more years of school.

b. Reference group: general curriculum.

c. Reference group: respondents living in small city or suburb at age 14.

* Significant at .10 level (2-tailed t-test except for Scholastic Aptitude and Sociceconomic Origin).
** Significant at .05 level.

documented earlier (i.e., among whites at least), seems to have served as an offsetting influence, such that there is no clear statistically significant relationship with total years of schooling completed.

Postschool Training

Paying explicit attention to the relationship between curriculum and the nature and extent of postschool training is not only valuable in its own right, but needs to be done in order to interpret curriculum effects on postschool labor market outcomes. As indicated earlier in findings from research with NLS data, while the vocational program may have a net negative impact on the amount of formal postsecondary schooling completed, opportunities for postschool training may serve as attractive alternatives, or substitutes for academic studies.

The NLS data show that young women received training after high school from such sources as business and technical schools, adult education, and company-sponsored training programs. Nearly half of both white and black women (i.e., 48 and 47 percent, respectively) with 10 to 15 years of school had done so by 1972 (see Table 11).

Participation in postschool training varied with level of formal schooling. Among whites, for example, only 33 percent of high school dropouts had some training, while over 50 percent of high school graduates did, and the same pattern holds for blacks. Furthermore, the type of training received varied by level of schooling. Among women of either race, those who had gone to college tended to gain training of a "professional or technical" nature, while those with high school diplomas tended toward clerical or secretarial types of training (see Table 12).

Among the high school graduates who did not go to college, several differences are related to curriculum. Women from college preparatory programs were more likely to receive some training, and, among whites at least, were more likely to receive "professional or technical" or "clerical" training. Women from business and office high school programs tended toward clerical or secretarial training, presumably to supplement the skills gained in school. There were no extraordinary differences among women from the general curriculum in the amount or type of training received.

It is also interesting to examine results for the general and college preparatory high school graduates according to whether they had received any typing or shorthand in high school. Surprisingly, the receipt of typing courses during high school seems to be related to a greater likelihood of receiving additional training. In fact, the proportions receiving postschool clerical or secretarial training are invariably

Table 11

Percentage of Respondents Reporting Post-School Training, by Highest Year of School Completed, High School Curriculum (most recent), and Race: Women (1972) Not Enrolled in School.

(Number in Thousands)

	Whites		Blacks	
	Number	Percent some training	Number	Percent some training
10 to 11, total (average)	2,303	33	661	38
12, total (average	5,501	52	771	51
Vocational	129	42	39	46
Business and office	2,061	54	160	60
General	2,844	46	454	46
College preparatory	1,354	64	112	66
13 to 15, total (average)	1,643	51	141	66
10 to 15, total (average)	10,447	48	1,573	47

a. Percent not reported; base less than 25 sample cases.

Note: Data pertain to women 18 to 29 years old in 1972.

Table 12

Percentage of Respondents Reporting Training Outside Regular School, by Highest Year of School Completed 1972, High School Curriculum (most recent), and Race: Women Not Enrolled, 1972.

Highest year and curriculum	Number in thousands	Percent reporting: Some training (unduplicated count)	Type: Prof., tech., mgr.	Type: Clerical	Type: Skilled manual	Type: Other
Whites						
10-11, total (average)	2,303	33	5	10	6	20
12, total (average)	6,501	52	16	26	7	18
Vocational	129	42	11	14	3	25
Bus. and Office	2,061	54	14	31	5	19
General	2,844	46	12	22	8	16
w/typing, shorthand	2,071	49	12	24	8	19
w/o typing, shorthand	768	36	12	15	6	8
College preparatory	1,354	64	27	30	10	20
w/typing, shorthand	913	70	28	33	12	26
w/typing, shorthand	441	52	27	21	8	8
13-15 total (average)	1,643	51	31	18	4	17
Blacks						
10-11, total (average)	661	38	8	9	5	27
12, total (average)	771	51	15	25	9	18
Vocational	39	46	9	17	3	27
Bus. and office	160	60	21	29	9	22
General	454	46	14	20	9	15
w/typing, shorthand	278	45	14	22	7	14
w/o typing, shorhand	175	46	13	18	12	18
College preparatory	112	66	16	45	9	18
w/typing, shorthand	80	72	17	56	11	15
w/typing, shorthand	32	50	14	18	3	24
13-15, total (average)	141	66	26	33	7	30

higher for those with typing or shorthand during high school than for those without: for white college preparatory women the figures are 33 versus 21 percent; for white general curriculum graduates they are 24 and 15: and the analogous figures for blacks are 56 versus 18 and 22 versus 17 percent. Thus, information on amounts and types of postschool training received by young women suggests that training after high school may supplement the program of study taken in school.

Labor Force Participation

Although results from the NLS show that about 19 of every 20 male respondents no longer in school were either working or seeking work at each NLS survey, the data for women reveal a different pattern. Many do not participate in (or seek) paid employment because of family responsibilities. Others work part time, usually by choice, but sometimes because of the work opportunities available to them. Such patterns, by level of education and most recent high school curriculum, are of interest in their own right. In addition, they represent an important area for examining curricular differences in economic outcomes.

NLS data for 1972 reveal that, by and large, the more education a woman has completed, the greater the likelihood of her participation in the labor force and of working full time rather than part time. Concerning the high school graduates only, the participation rates of those with different curriculum backgrounds were quite similar to one another, but the percentage of employed women working full time (35 or more hours per week) was higher among former occupational students than among their peers. The full-time rate was especially high for white women from "other vocational" programs and for blacks from business and office studies.

Differences in these rates reflect, of course, underlying variation in marital and family status. White business and office graduates were more likely than other whites in 1972 to be "married with children," but less likely to be "not married with no children" (i.e., single, divorced, widowed without children); overall, the difference in white labor force participation rates between business and office graduates and general graduates was one percentage point. Black business and office graduates were less likely than their general peers to be "married with children," but more likely to be "not married with children;" the overall difference in black participation rates was only two percentage points. Thus, among both races, counterbalancing influences lead to similarities in labor force participation. Even so, of women who work, vocational and business and office graduates are still more likely to be full time than are general graduates (e.g., among whites the rates are 87, 75, and 72 percent, respectively).

Unemployment

Analysis of the relationship between high school curriculum and unemployment among males in the NLS led to mixed findings. Specifically, a number of different measures of unemployment experience were used, and results with the different measures were found to vary.

However, the young women's results were found to consistently point to one conclusion. The graduates from occupational programs (most of whom were from the business and office area) were less likely to be unemployed at the various surveys than were the general curriculum graduates. Also, of those unemployed at each survey date, the spells of occupational program graduates were on average shorter than those of their peers.

Occupational Attainment

Earlier we presented data on the types of work that female high school students said in 1968 they desired to have when they reach age 35. In this part, we review the occupations actually held in 1972 by those who were out of school. Table 13 is devoted to high school graduates without any college. As shown, very high proportions of business and office graduates held clerical jobs (74 percent of the whites and 60 percent of the blacks). These were jobs earning high "typicality" ratings (e.g., 65 percent of the white business and office graduates in our data were in occupations where over 80 percent of all workers are female). Interestingly, a high proportion of black college preparatory graduates also held clerical and traditionally female jobs.

At the same time, other vocational graduates (whites, at least) and black general curriculum graduates were especially likely to hold blue-collar positions. Jobs held by these groups showed the lowest sex-typicality ratings, but even here it was more that 40 percent who worked in predominantly female occupations.

We can broaden our view in Table 14 by reviewing the occupations held by women with various levels of schooling. As shown, while only 2 or 3 percent of women with 10 or 11 years of school hold professional or technical jobs, this is true of much higher proportions of those with 13 to 15 years of schooling (30 percent of whites and 21 of blacks). And, while over half of those with 10 to 11 years hold blue-collar or service jobs, very few of those with 13 to 15 years held such jobs. Much of the variation seems to reflect improved opportunities for high school graduates over dropouts.

Table 13

Occupation on Current Job (not last job if not employed), by High School Curriculum and Race: Women Not in School in 1972 Who Had Completed Exactly 12 Years of School.

(Number in Thousands)

Occupation group and sex typicality	Total	Vocational	Business, Office	General	College Preparatory
			Whites		
Major group (percent)					
Professional, technical	6	5	5	5	11
Clerical	60	29	74	52	55
Sales	7	14	3	8	8
Service	14	12	11	16	15
Blue-collar	13	40	7	19	11
Typicality					
Occupation 80-100% female	60	47	65	56	58
Number	3,597	106	1,180	1,384	854
			Blacks		
Major group					
Professional, technical	3	a	6	2	2
Clerical	49	a	60	41	68
Sales	2	a	1	2	0
Service	20	a	18	24	5
Blue-collar	26	a	15	31	25
Typicality					
Occupation 80-100% female	51	a	55	44	62
Number	408	16	98	213	56

a. Percent not shown; base less than 25 sample cases.

Table 14

Occupation on Current (or last) Job by Highest Year of School Completed and Race: Women not Enrolled in 1972.

	Women		
	10-11 years	12 years	13-15 years
Whites (number)	532	3,597	1,614
Prof, tech[a] (Percent)	2	5	30
Managerial	2	2	4
Clerical	38	60	43
Sales	4	7	4
Craftsmen	3	1	0
Operatives	17	9	3
Household	6	3	2
Service	24	14	13
Farm	1	0	0
Laborers	1	0	0
Blacks (number)	149	408	163
Prof, tech[a] (Percent)	3	2	21
Managerial	1	1	2
Clerical	22	50	54
Sales	1	1	2
Craftsmen	0	2	0
Operatives	24	20	9
Household	9	4	0
Service	38	20	10
Farm	0	0	0
Laborers	2	1	1

a. Detail may not add to 100 percent due to rounding.

b. Category was not included for women.

* Less than 0.5 percent.

The occupational distributions of employed women by their level of schooling also reveal some interesting differences by race. Among both high school dropouts and high school graduates, blacks are more likely than whites to hold blue-collar and service jobs, and are less likely than whites to hold clerical jobs. This is not the situation among those with some college. Here, blacks are more likely than whites to hold clerical jobs, and are about as likely as whites to hold blue-collar or service jobs. However, in every stratum, young black women are less likely than whites to have professional or managerial work.

Economic Outcomes

This section analyzes the impact of curriculum on economic outcomes: In hourly rates of pay, in annual wage and salary earnings, and in two measures conceived as proxies for long-run labor market outcomes (the Bose socioeconomic index of the occupation held, and the 1969 median earnings of full-year incumbents). Regression analysis is used, and explanatory variables include measures of aptitude, socioeconomic origins, extent of work experience, whether received postschool training, tenure with the employer, whether full time and whether the wages covered by a collective bargaining agreement. Also, a measure of the sex typicality of the occupation is occasionally included.

Results of the comparable analyses of men indicated that participation in an occupational curriculum during high school makes for little difference in the criterion measures, as compared to completion of a general program. This is not so among young women. The evidence suggests strongly that there are economic benefits to vocational education among females.

Selected regression results are shown in Table 15. The results for the business and office program (i.e., "B&072" in the table) show a $.27 advantage in hourly wage for whites, and $.26 for blacks. The impact on annual earnings is also great: $665 for whites, and $683 for blacks. Each coefficient is statistically significant. Results for the other measures of long-run labor market position also indicate a positive effect for white women (but not black). These results can be interpreted to mean that female business and office graduates enjoy a clear economic advantage over comparable graduates from the general curriculum.

Unfortunately, we cannot report results for graduates of other vocational programs, because sample sizes are too small. As for the effects of other variables not shown in the Table,

Table 15

Selected Unstandardized Regression Coefficients: Women, Not Enrolled 1972, Employed for Wages or Salary 1972, With Exactly 12 Years of Schooling, by Race[a]

(Standard Errors in Parenthesis)

Dependent variable	Curriculum[c] Vocational	Business, Office	College Preparatory
Whites:			
Hourly rate of pay	b	.27** (.08)	.24** (.10)
Wages or salary, past 12 months	b	665** (181)	225 (219)
Bose occupational index	b	3.34** (.84)	-.03 (.99)
1969 full-year earnings[d]	b	262** (127)	198 (150)
Blacks:			
Hourly rate of pay	b	.26** (.12)	b
Wages or salary, past 12 months	b	683* (365)	b
Bose occupational index	b	-.30 (1.90)	b
1969 full-year earnings	b	-182 (216)	b

a. Regression control for other variables listed in the text.

b. Coefficient not reported; inadequate sample cases.

c. Regression coefficients represent the net difference between each curriculum shown and the general curriculum.

d. Refers to typical earnings in the respondent's occupation: i.e., median 1969 earnings of all female full-year workers in the occupation, from the decennial Census.

the receipt of any postschool training seems to add about $.10 per hour to rate of pay (though the coefficient is significant only for whites) and the longer-term consequence of training may be even more substantial, since it is found to exert a positive effect upon the Bose occupational index for both races. Also, both the quantity of work experience and the number of years of service with the current employer seem to have positive economic effects.

It is also unfortunate that an analysis of the effects of curriculum among the high school dropouts and among those with some college was not possible, because the numbers employed in 1972 were too small to permit analysis of curricular differences in these dimensions. From at least one perspective this was to be expected, for we have previously documented the smaller than average likelihood of former occupational curriculum graduates either dropping out of high school or of completing any college.

We can, however, abstract from curriculum to investigate the effects on wages and earnings of women holding stereotypically female jobs. As we observed above, of the high school graduates, those from the business and office programs held such jobs and enjoyed a clear advantage in both hourly wage and annual earnings over those from the general track. More than this, we find that results from wage and earnings regressions demonstrate that the impact of employment in sex-typed occupations is <u>not</u> a simple or a straightforward matter.

As shown in Table 16, both wages and earnings rise with the level of education, and so does the index of typicality of occupation. For instance, the mean value of the index for those with 10 to 11 years, 12 years, and 13 to 15 years of schooling is 69.3, 74.8, and 77.6, respectively. Thus, higher levels of education of the women are associated with not only higher levels of wages and earnings, but also a greater likelihood of holding a traditionally female job.

However, within each educational level, the relationship between wages (or earnings) and the index varies. To illustrate, we use our regression results for women at each level of schooling to simulate the effects of a change from a job in which only 33 percent of all the incumbents are females, to a "typically female" one (i.e., 66 percent are females). Among high school dropouts, this change would result in a loss of $.33 per hour and $639 per year. Among high school graduates, the loss in hourly wage would be $.10, but there would be no significant difference in annual earnings. Among those with less than the baccalaureate degree, there would be no significant difference in hourly wage, but a gain of $529 in annual earnings. Also, as shown in the Table, the effects vary by race.

Table 16

Effects of Employment in Stereotypically Female Occupations on Hourly Rate of Pay and Annual Wage and Salary Earnings of Women, by Level of Education and Race

	Level of Education			Race	
	10-11 years	12 years	13-15 years	Whites	Blacks
	All Races			12 Years	
Results from wage regression					
Mean hourly wage	$2.25	$2.58	$3.35	$2.58	$2.54
Mean % female[a]	69.3	74.8	77.6	75.2	69.3
Simple correlation	-.305	-.049	.009	-.062	.081
Partial regression coefficient	-.010	-.003	+.002	-.003	.000
(t-value)	(-2.94)	(2.04)	(0.30)	(-2.05)	(0.07)
Regression n	80	559	171	474	119
Results from earnings regression					
Mean earnings	$3,215	$4,174	$5,510	$4,158	$4,284
Mean % female[a]	69.4	74.5	75.5	75.0	68.3
Simple correlation	-.263	-.014	.052	-.021	.063
Partial regression coefficient	-19.2	-2.9	15.9	-3.5	2.1
(t-value)	(-2.27)	(-0.99)	(1.91)	(-1.06)	(0.33)
Regression n	77	558	135	445	109
Estimated effects of change of occupation from one that is 33% female to one that is 66%.					
. . . in hourly wage	-.33	-.10	n.s.	-.10	n.s.
. . . in annual earnings	-639.	n.s.	+529.	n.s.	n.s.

a. Refers to the mean of the following: each respondent was assigned a value according to her 1972 occupation - namely, the proportion of all workers in that occupation who are females, taken from 1970 census data.

n.s. Refers to "no significant difference."

Stated differently, our regression results suggest that female high school dropouts in traditionally female jobs are earning less than their peers, both per hour and per year. However, female high school graduates in traditional jobs earn less per hour (but not per year) than their peers. And females with some college in traditional jobs actually are earning more per year then their peers.

As shown earlier, the occupations of women vary by their level of schooling. Thus, even among women in traditional jobs, the precise occupations held by those with some post-secondary education are not the same occupations that are held by high school dropouts. For instance, the occupations of those with 13-15 years of school include types of nurses and teachers as well as secretaries and clerks. The occupations of those with 12 years of school include secretary, clerk, operative, bookkeeper, attendant (hospital and other), and office machine operator. Finally, those of the high school dropouts include attendants (hospital and other), sewer and stitcher (manufacturing), operative, and clerk.

Summary

The findings indicate first that the meaning of vocational education enrollment information is different for young women than for young men. Despite the fact the the "consumer and homemaking" area contains the largest enrollments in federally reimbursable vocational education, fewer than 1 percent of young women in the National Longitudinal Surveys identified home economics as their high school program of study.

Of the female high school students enrolled in occupational subjects, the vast majority were in the "business and office" specialty area. In addition, over four-fifths of the remaining, nonvocational females reported receiving courses in typing and/or shorthand during high school.

As compared to young women in the general curriculum, the vocational students are characterized by an intent to complete high school and not to go to college. Findings reveal that they are, in fact, more likely to graduate and less likely to enter college.

Also, it may be said that the occupational goals of vocational students are heavily sex stereotypic, compared to their peers', and in fact, vocational students hold typically female jobs after leaving school. However, despite being employed in traditionally female jobs, the business and office graduates enjoyed higher wages and suffered less unemployment than their peers from the general track (i.e., who completed high school and did not go to college).

It was found within every curriculum group that at least two-fifths of the high school graduates not entering college worked in sex-typed jobs, but working in "female" jobs did not necessarily mean lower wages than working in non-sex-typed occupations. As stated, business and office graduates were especially likely to do so, but enjoyed important advantages. Also, of women with some years of college (but less than a baccalaureate degree), those working in "female" jobs earned more per year than those working in less heavily stereotypic jobs.

According to these findings, young women in high school face important dilemmas. They seem to understand that nontraditional fields are somewhat more open today than historically. Indeed, they may feel pressured to exercise nontraditional options due to emphasis in the national media. Still, the available evidence on their career plans and on their choice of high school curriculum fails to indicate any significant response on their part to perceptions of broader options. It would seem that traditional factors and socialization continue to exert some influence.

More than this, our results show economic benefits to business and office programs. Both the wide availability of jobs in this field that facilitate easy entry and reentry, and the wage advantages that can be expected to continue attracting young women, irrespective of consequences in terms of occupational sex segregation. According to NLS data on women with less than a four-year college degree, enrolling in a different high school curriculum reduces the likelihood of a traditionally female job only moderately and does lead to lower pay.

It is interesting to reflect on the implication of our findings for the hypothesis mentioned at the outset: That secondary-level vocational education contributes to sex inequalities in the labor market. This was based on the notion that sex-segregated enrollments lead to occupational sex segregation and earnings inequities. Of course, our findings contradict this simple hypothesis in many respects.

To criticize vocational education for sex segregated enrollments in the belief that this will somehow help young women is, according to the evidence, misguided. Rather, to develop new hypotheses based on a clear understanding of the options available to young women now and in the future, as well as on young women's own needs, would seem to be a more promising endeavor.

SOME LONG-RUN LABOR MARKET EFFECTS OF VOCATIONAL EDUCATION ON YOUNG WOMEN

by

Sandra L. Hofferth

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SOME LONG-RUN LABOR MARKET EFFECTS OF VOCATIONAL EDUCATION ON YOUNG WOMEN

Most studies have been unsuccessful in finding persistent and strong effects of vocational education on the labor force prospects of men, although short-term effects have been identified.[1] Of the few that have looked at young women, the recent Grasso and Shea study[2] found some labor market benefits of vocational education. Young women who were in a commercial curriculum in high school earned more during the first few years after high school. The potential implications of such a finding for sex equity in vocational education make further exploration of the association between occupational training in high school and the labor market prospects of men and women important.

The research reported here was conducted as part of a larger study of the effects of high school experience on the occupational choices and later life chances of young women and men who did not attend college, focusing on equity issues.[3] Curriculum was one of the most important high school variables examined. In the Grasso and Shea, and others studies, there are a number of methodological problems that might limit the ability of researchers to identify curriculum effects. First, many studies did not have a control group--that is, comparable individuals who did not obtain vocational training. Using data from a representative youth sample, selecting from them those who did not later attend college, and controlling in a multivariate framework for a number of factors that are found to influence high school curriculum choice allow us to reject a number of alternative explanations for the effects of curriculum we may find. In addition, selecting a sample only

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1. See, for example, Robert F. Taylor, "The Effects of Vocational Education," testimony before the Subcommittee on Elementary, Secondary, and Vocational Education, September 24, 1980.

2. John T. Grasso and John R. Shea, Vocational Education and Training: Impact on Youth (Berkeley: Carnegie Council on Policy Studies in Higher Education, 1979).

3. Sandra L. Hofferth, "High School, Occupational Choice and Sex Equity." Working Paper 1303-02 (Washington, D.C.: The Urban Institute, 1980).

of youth who do not later attend college gives us a control group for studying the effects of vocational education at the high school level. If there are any direct effects, they should be strongest among these youth. Second, not enough time may have passed in most studies to accurately assess whether vocational programs would have long-term impacts. This is especially important for young women who spend a portion of their postschool years out of the labor force. Of course, the short-term effects of vocational programs are important; however, it is also important to know whether and how quickly they decay and, in comparison, how youth who make alternative choices fare in the long run. Third, the time periods in the previous studies may not have been carefully enough defined. High school programs might have some impact on men and women at early points, but not at later points after high school, and vice versa. By explicitly defining points of time after high school we should be better able to compare the results of several studies to see whether the results differ because of the time points in which youth are interviewed, or whether the results differ for other reasons. Fourth, previous studies have focused on employment and earnings. They have not looked at the sex typicality of the occupations youth choose and its implications for their later well-being. We hypothesized that entry into less sex-typical occupations would be advantageous for noncollege women, and that vocational training might lead to entry in such jobs.

Data and Methods

The data in this study come from the National Longitudinal Surveys of the Labor Market Experiences of Young Men and Women. These consist of a national sample of 5,000 men and 5,000 women who were 14 to 24 in 1966 and 1968, the initial years of the surveys. With the exception of 1974 and 1976 for women, and 1972 and 1974 for men, the interviews were conducted annually. Data for this study were available through the 1975 interviews, giwing 8 years for women, 9 for men. Sample retention has been very high, with 82 percent of the young women, and 76 percent of the young men remaining in the survey after the 1975 interview.

From these data we selected a sample of young men and women who were out of school in the first survey year and who had not completed any college by the last year of the survey. For these individuals we defined three points, approximately 3, 5, and 10 years after their senior year in high school. This approach was taken to make the data comparable to studies such as the National Longitudinal Survey of the High School Class of 1972, which interviewed a grade cohort. Data were obtained from each individual at each time point. Not all

individuals are in the sample at all time points, but most are in for at least two points. Since this may present problems of comparability, our sample was restricted to only those youth in the survey at both points when studying changes over two time points.

The National Longitudinal Surveys grouped the high school curricula as reported by respondents into four categories (Table 1). About one-third of all youth are enrolled in a college preparatory curriculum. About half were enrolled in a general curriculum. Youth in this curriculum take academic and nonacademic subjects, but are provided with neither a specific training program to facilitate getting a job, nor a level of academic training high enough to facilitate entering college. This curriculum constitutes the comparison group in the analysis. In this study we focused on the 13 to 20 percent of all students who were in occupational curricula. The NLS divides occupational programs into two distinct categories: a commercial program, which is primarily secretarial, and a vocational program. The latter is dominated by the trade and industrial specialities such as carpentry, but also includes technical programs (electronics), agriculture, health, occupational home economics, and distributive education (marketing). These two occupational programs are highly sex segregated. In the National Longitudinal Surveys, 10 percent of men and 2 percent of women were enrolled in vocational programs. Three percent of men were enrolled in commercial programs compared with 19 percent of women. Within these programs there was also substantial segregation by sex. Women in vocational programs were enrolled in clothing, commercial art, and home economics, while men were enrolled in technical and trade programs. Within the commercial program, men are more likely to be in accounting and women in secretarial programs. Although these data represent school experiences during the 1960's and early 1970's, they are not unrepresentative even today. The proportion of females in typically male vocational courses has doubled in the last decade; however, the absolute proportion is still small, about one in 10 is a women.[4]

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4. Project on Equal Education Rights (PEER), In America's Schools It's Still A Man's World (Washington, D.C.: PEER, 1979).

Table 1

High School Curriculum of All Youth

		Men		Women	
		Number	Percent	Number	Percent
Vocational:	NEC[a]	230	5	44	1
:	Metal, Wood, Electrical, Mechanical, Other Building Trades	236	5	0	0
:	Clothing, Commercial Art, Distributive Education, Home Economics	0	0	61	1
Commercial:	Secretarial and NEC[a]	137	3	887	19
College Preparatory		1,627	36	1,562	33
General		2,320	51	2,170	46
TOTAL		4,550	100	4,724	100

a. Not elsewhere classified.

Of course, the distribution of our noncollege sample differs from that of all youth. Because most of those in college preparatory curricula went on to college, a much smaller proportion of out-of-school youth who did not attend college had been in a college preparatory curriculum in high school and a larger proportion had been in general and occupational curricula (Table 2).

Table 3 presents a model of the factors and events hypothesized to affect the later employment, occupations, and wages of noncollege youth.[5] This diagram indicates that the labor force outcomes we consider here are merely the last step in a considerably longer chain of events and circumstances. Variables to the left of occupations and wages and to the right of high school experience in the diagram are contingencies that condition the effects of high school experience on labor market outcomes.[6] Those to the left of high school experience in Table 3 serve as important controls for initial differences between youth in different curricula. They are all included in the wage and occupation equations reported here.

The two labor market outcomes on which we focused are occupation and wage. Occupations are defined in this study by the female proportions in 1970. The variable used in these analyses is continuous, ranging from no females to 99 percent female in an occupation. In reporting the results we refer to occupations with fewer than 23 percent female as "male sex typical," those with more than 53 percent as "female sex typical." Those between 23 and 53 percent female we refer to as "mixed" occupations.[7] In this study, women were in jobs that average 68 to 74 percent female; men were in jobs averaging 13 to 19 percent female (Table 4).

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5. In this model all early events affect all later events, but no later event or variable affects earlier events or variables in the chain, i.e., the model is recursive.

6. The effects of school curriculum on these intervening variables is reported in Hofferth, "High School, Occupational Choice and Sex Equity."

7. In 1970, 38 percent of the labor force was female. If men and women were equally distributed in all occupations, almost half of all women would be employed in mixed occupations as we have defined them; the remaining half would be distributed equally in male and female jobs.

Table 2

Proportion in Each High School Curriculum of Noncollege Youth

	Women		Men	
	White	Black	White	Black
Vocational	.02	.04	.15	.17
Commercial	.35	.17	.04	.03
College	.13	.10	.12	.06
General	.50	.69	.69	.74

Table 3

Model of the Post-High School Attainment Process

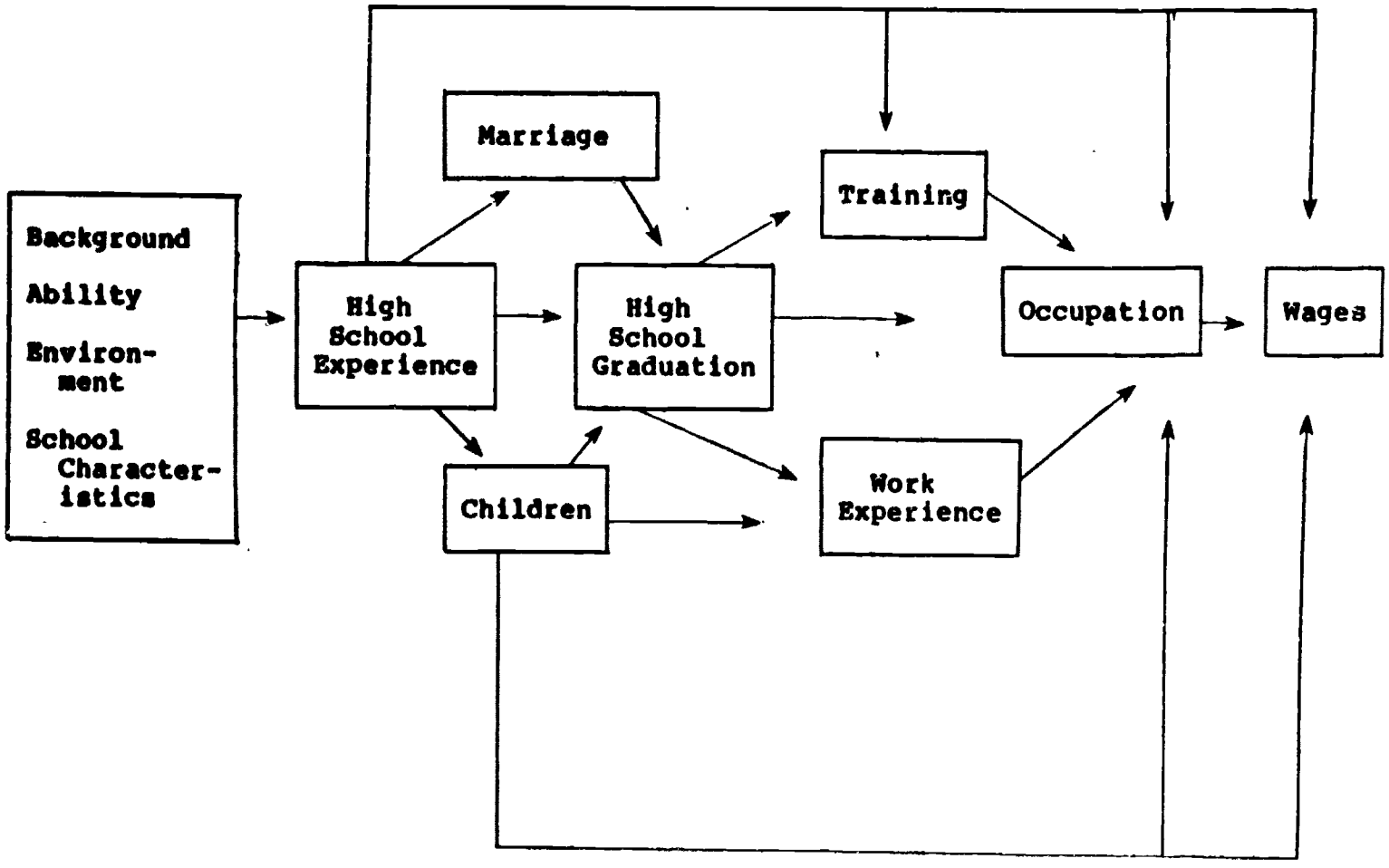

Table 4

Proportion Female in the Occupations of Noncollege Youth in Years After High School

	3 Years	5 Years	10 Years
White Women	.74	.74	.74
Black Women	.69	.69	.68
White Men	.18	.16	.13
Black Men	.18	.19	.18

There is substantial variation in earnings among male and female youth, none of whom attended college. Their average wages 10 years after high school ranged from $3.97 per hour for black women, to $7.59 per hour for white men (Table 5).[8] Rather than decreasing, the sex difference in wages increased over the decade after high school.

The proportion of females in each respondent's occupation and the respondent's wages were regressed in linear form on a set of dummy variables representing high school curriculum (general curriculum was the comparison category) and on a set of contingencies and control variables 3, 5, and 10 years after high school, separately by race and sex.[9] In addition, the log of the respondent's wages was regressed (in nonlinear form) on the curriculum dummies and on the same set of control variables and contingencies. Differences in results from the linear and nonlinear regressions were small. Results of the nonlinear analysis are presented later in the text and in Table 7 as the percentage difference in wages between a person who was in a given curriculum and the one who had been in a general curriculum in high school.

Results

Occupation Proportion Female

Table 6 shows the percentage point difference in the occupation proportion female associated with having been in a vocational, college, preparatory or commercial curriculum compared with having been in a general curriculum in high school. Three and 5 years after high school, curriculum is associated with the occupation proportion female for black men only. Three years after high school, black men who were in a college preparatory curriculum in high school work in occupations with 17 percentage points more women than those who were in a general curriculum. Five years after high school black men who were in vocational programs and in commercial programs work in occupations with a higher proportion of women than those who were in a general curriculum in high school (9 percentage points and 19 percentage points, respectively).

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8. 1979 dollars.

9. The analyses were restricted to those who reported an occupation and earnings.

Table 5

Hourly Wages of Noncollege Youth (1979 dollars) in Years After High School

	3 Years	5 Years	10 Years
White Women	4.09	4.20	4.55
Black Women	3.68	3.93	3.97
White Men	5.60	6.20	7.59
Black Men	4.42	4.67	5.47

Table 6

Curriculum Effect on Proportion Female in Occupation in Years After High School

	3 Years	5 Years	10 Years
White Women			Vocational -20
Black Women			Vocational -20
White Men			
Black Men	College +17	Vocational + 9 Commercial +19	

Table 7

Curriculum Effect on Wages
in Years After High School

	3 Years	5 Years	10 Years
		Percent	
White Women		Commercial + 8 Vocational -28	College +12 Vocational -26
Black Women			Commercial +19
White Men		Vocational + 7	
Black Men			

Ten years after high school curriculum is associated with the proportion female in respondent's occupation for women, but not for men. Both white and black women who were in a vocational curriculum in high school are employed in occupations with about 20 percentage points fewer women than those who were in a general curriculum.

Hourly Wages and Occupation Proportion Female

The proportion of women in an occupation and their wages have been found by other researchers to be linked.[10] We also found such an association in our sample. Ten years after high school, a 10 percentage point increase in the proportion female in an occupation is associated with a drop in hourly wages amounting to 2 to 3 percent for white and black men and women.

However, being in an occupation with a smaller proportion of women does not appear to have raised the hourly wages of white and black women who were in other vocational programs in high school. Rather, their wages are substantially lower (Table 7). They may be in less "female-typed" occupations; however, they are in the less "desirable" of these occupations.

Hourly Wages

Curriculum does not appear to influence the hourly wages of young men or women 3 years after high school, controlling for other factors. Five years after high school the effects appear. Table 7 shows the percentage wage difference 3, 5, and 10 years after high school between youth who had been in a commercial, college preparatory, or vocational curriculum and those who had been in a general curriculum.

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10. Carol L. Jusenius, "The Influence of Work Experience, Skill Requirement, and Occupational Segregation on Women's Earnings," Journal of Economics and Business 29 (1976-1977): 107-115; Andrea H. Beller, "Occupational Segregation by Sex: Determinants and Changes," University of Illinois at Urbana, Department of Family and Consumer Economics, April 1980; Grasso and Shea, Vocational Education and Training: Impact on Youth.

White women who were in commercial programs earn wages higher by $.32 per hour (8 percent) than those who were in a general curriculum 5 years after high school, while those who were in a vocational curriculum earn $.77 per hour less (28 percent). Ten years after high school, the positive effect of commercial curricula on young white women has disappeared. Instead, young white women who were in a college preparatory curriculum in high school earn $.51 more per hour (12 percent) than those in a general curriculum. As in the fifth year after high school, those who were in other vocational curricula earn $1.10 (26 percent) less per hour than those in the general curriculum.

Curriculum does not affect the wages of black women 5 years after high school. Ten years after high school young black women who were in a commercial curriculum in high school earn $.81 more per hour (19 percent) than those who were in a general curriculum. Those who were in vocational programs also earn less, but the effect is not statistically significant.

Five years after high school young white men who were in vocational programs in high school make $.61 (7 percent) more per hour than their peers who were in a general curriculum. Curriculum has no effect 10 years after high school on the wages of white men.

There is no effect of curriculum on the wages of black men 5 or 10 years after high school.

Wage Growth and Change in Occupational Segregation

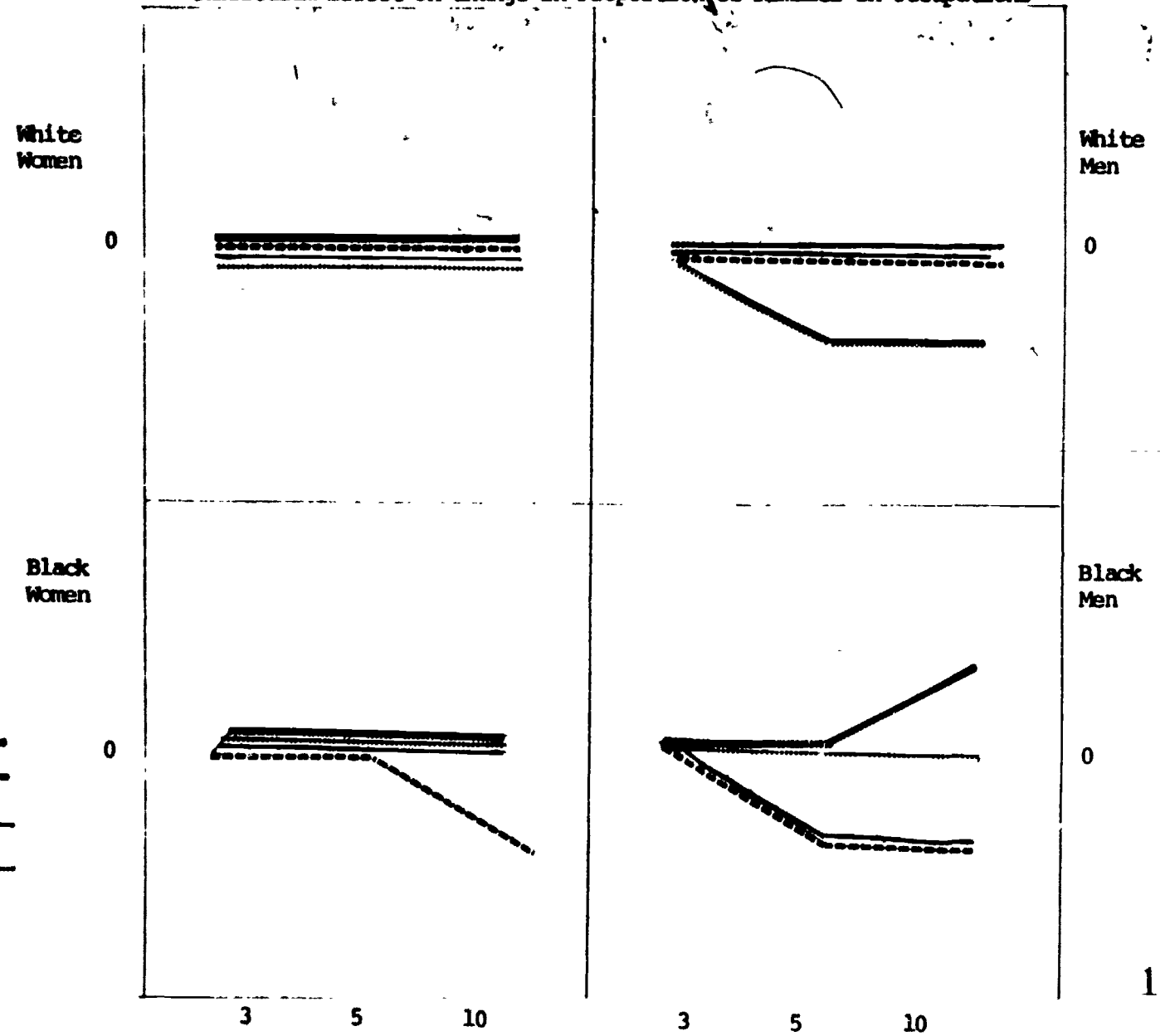
Even if their absolute levels of wages do not differ by curriculum, having been in one high school curriculum or another may be associated with greater or lesser growth in wages over a given time period relative to having been in a general curriculum. To consider this possibility, we looked at the effect of curriculum on the growth in earnings and on change in the proportion female in the occupations held by young men and women between 3 and 5, and 5 and 10 years after high school.

Change in Occupation Proportion Female

No significant change in the proportion female in the occupations of black or white women occurred between 3 and 5 years after high school (Table 8). The same was true for the occupations of white women between 5 and 10 years after high school. Black women in a vocational curriculum in high school moved into less female-typed occupations between 5 and 10 years after high school, relative to those in a general curriculum.

Table 8

Curriculum Effect on Change in Proportion of Females in Occupations



White men in a commercial curriculum in high school moved into more male-typed occupations between 3 and 5 years after high school, with no change between 5 and 10 year after high school.

Black men in vocational and college preparatory curricula in high school moved into more male-typed occupations between 3 and 5 years after high school, but no change occurred in the following period. Black men in commercial curricula experienced no change between 3 and 5 years, but between 5 and 10 years after high school they moved into less male-typed occupations.

Except for black males in commercial curricula, men tended to move into more male-typed occupations over the decade after high school. Except for black females in vocational curricula, women tended to stay in highly female-typed occupations. Even for black males in commercial curricula and black women in vocational curricula, these changes are not enough to move women into male-typed occupational or males into female-typed occupations. The largest changes move men and women into the "integrated" occupations. In addition, we have shown earlier that, contrary to hypothesis, women who were in a vocational progam and who entered less female-typed occupations do not receive higher wages as a result; nor do black men entering less male-typed jobs receive lower wages.

Changes in Wages

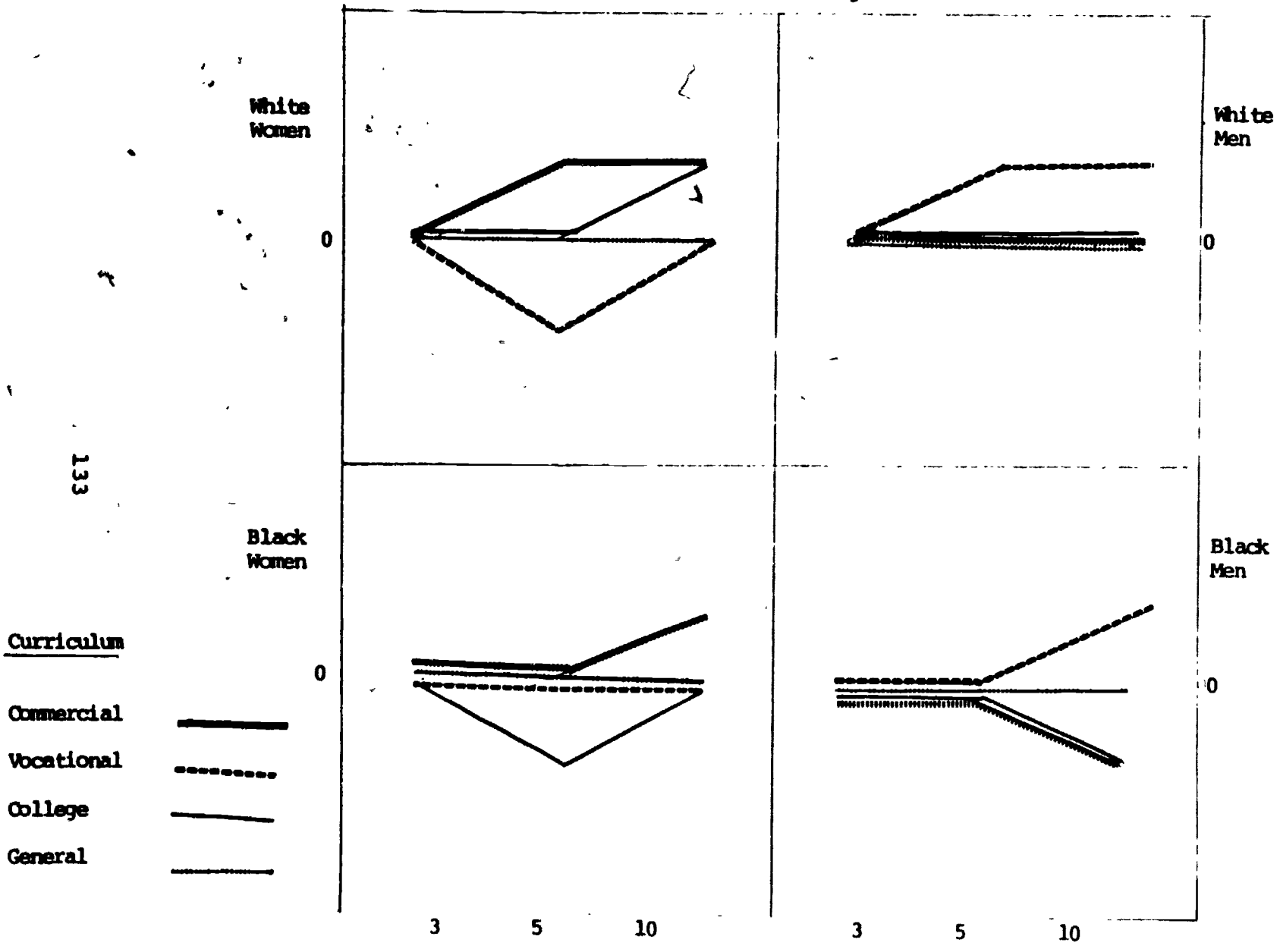
Relative to changes in the wages of those who were in a general curriculum, between 3 and 5 years after high school the hourly wages of white women who were in a vocational curriculum declined, only to rise again between 5 and 10 years after high school (Table 9). The hourly wages of white women who were in a commercial curriculum rose between 3 and 5 years after high school, staying the same between 5 and 10 years. Between 5 and 10 years after high school the wages of white women who were in a college preparatory curriculum rose, although they had remained the same between 3 and 5 years after high school.

The wages of black women who were in a college preparatory curriculum declined over the period 3 to 5 years after high school but rose again between 5 and 10 years after high school. The wages of black women in commercial curriculum remained the same in the former period and rose in the latter. There was no change in the wages of those in a vocational curriculum over the entire period.

The wages of white men in a vocational curriculum in high school increased substantially over the period 3 to 5 years

Table 9

Curriculum Effect on Wage Growth



after high school and remained constant between 5 and 10 years after high school, relative to the wages of those in a general curriculum.

The wages of black men in a vocational curriculum stayed constant relative to those in a general curriculum between 3 and 5 years after high school, and rose between 5 and 10 years after high school. The wages of black men who were in commercial and college preparatory curricula were essentially constant between 3 and 5 years after high school; however, both declined in the 5 to 10 year period after high school relative to those of men who were in a general curriculum.

The benefits (or harm) to white women and men of occupational programs in high school appear in the first 3 to 5 years after high school while the effects of occupational programs on black men and women appear later, between 5 and 10 years after high school. The benefits of college preparatory programs for white women first appear between 5 and 10 years after high school. The fact that black women start their families earlier than white women may account for their delayed commercial curriculum effect. The trend among black women (Table 9) also suggests that some wage benefits of having been in a college preparatory curriculum may appear after the tenth year. Of course, from data at only three time points we can't establish trends with any confidence. We obtain a better picture, however, of the wage and occupation dynamics that produced the differences in occupations and wages 5 and 10 years after high school reported in Tables 6 and 7.

Conclusions

Occupational training in high school does affect the labor force prospects of men and some women in the short run. White women who were in commercial programs and white men who were in other vocational programs earn more 5 years after high school than their peers who were in a general curriculum, controlling for a number of other ways in which these groups might differ. White women in other vocational programs earn less. Occupational training in high school does not affect the long-term prospects of men. The wages of men who were in different curricula in high school do not differ significantly 10 years later. In contrast, the long-term effects on white women differ from the short-term effects. The positive effect on wages for white women of having been in a commercial program has disappeared by 10 years after high school, while the negative effect on wages of having been in a traditionally female vocational program such as homemaking remains strong. Young women in the latter programs wind up in less traditional jobs without the benefit of higher wages. The effects of curriculum on the wages of black women are somewhat

different. Black women in commercial programs do earn more 10 years later than those who were in a general program in high school. However, the evidence from the change analysis suggests that the impact of curriculum on blacks appears somewhat later in the decade after high school than it does for whites--not until the fifth year is any wage change associated with high school curriculum significant. If so, then we would expect that the trend for black women would follow that for white women. That is, the positive effect of training for secretarial positions will disappear as the long-run, substantially negative effect of segregation into dead-end jobs in the relatively low-paid female wage sector increases. Unfortunately, at the time these data were collected, few women were in nontraditional vocational curricula in high school, so no test could be made as the impact of participation in nontraditional occupational curri ula on the later wages of young women.

By the tenth year after high school the same factors associated with the higher wages and earnings of those attending college (having been in a college preparatory curriculum) also predict the labor market success of young white women not attending college. Besides those who were in a college preparatory curriculum, those with higher abilities, those who spent time in homework, those with a positive attitude toward high school, and those who spent time in extracurricular activities all had higher hourly wages than their peers 10 years later.[11]

These results suggest that young white women who receive the basic schooling of those later going to college will be the most successful. There are a number of reasons why this might be the case. Rosenbaum suggested that the socialization of those in college preparatory tracks is quite different from those in other tracks. The former receive a better education and have more rewarding experiences in school.

In fact, he found that the former became more differentiated in ability, the latter, more homogenous.[12] Second, Bowles and Gintis suggested that the factors associated with the later labor market success of individuals

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11. Hofferth, "High School, Occupational Choice and Sex Equity."

12. James F. Rosenbaum, Making Inequality: The Hidden Curriculum of High School Tracking (New York: John Wiley and Sons, 1976).

are motivational and attitudinal, rather than either ability or skill related.[13] Those in the college preparatory curriculum tend to have the highest motivation. Of course, there is a third possibility, and that is that labor market barriers reverse the initial gains of women who took commercial programs in high school relative to those in a general curriculum. That is, if secretarial positions were, in fact, not dead-end at all, but were a stepping stone to advancement in an organization, their initial gains might not disappear over the decade after high school. However, it has also been argued that, although it may increase employment, very specific skill training is, in the long run, detrimental to the wages of the employee, while advantageous to the employer.[14] At the same time, more general training benefits the worker, with little impact on the employer.[15] Employers are hypothesized to hire "trainability" (general skills) among males, but to hire "training" (specific skills) among females,[16] which might explain the weak effect of vocational education in high school on the wages of males and its stronger effect on the wages of females. To the extent to which discriminatory barriers are broken, however, trainability should become more important in hiring women as well, perhaps reducing the impact of learning specific skills in high school on their later wages and earnings.

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13. Samuel Bowles and Herbert Gintis, Schooling in Capitalist America (New York: Basic Books, 1976).

14. We did not find any significant effect of occupational curriculum on the employment or unemployment of black or white men or women 3, 5, or 10 years after high school. We did find that white women in commercial curricula in high school accumulated more work experience relative to those in a general curriculum (Hofferth, "High School, Occupational Choice and Sex Equity").

15. W. Norton Grubb, "The Phoenix of Vocational Education: Implications for Evaluation," in The Planning Papers for the Vocational Education Study, ed. National Institute of Education (Washington, D.C.: U.S. Government Printing Office, 1979), pp. 195-215.

16. Sue E. Berryman, "Vocational Education and the Work Establishment of Youth: Equity and Effectiveness Issues" (Santa Monica: Rand Corporation, 1980).

HIGH SCHOOL TRACKING AND VOCATIONAL STEREOTYPING: MEANS OF SOCIOECONOMIC PLACEMENT

by

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HIGH SCHOOL TRACKING AND VOCATIONAL STEREOTYPING: MEANS OF SOCIOECONOMIC PLACEMENT

Introduction

This paper focuses on "sex equity" and "occupational stereotyping," but as these are relative terms, the analyses are meaningful only when placed into a general framework. As will soon be obvious from the data, women's education, employment, and earnings need to be compared not only to those of men, but the discrepancies in the data for blacks and whites are so large that we have also subdivided the sexes by race. Thus, the analyses presented below will compare the following groups: white males, black males, white females and black females.

The results we present here are extracted from a study on vocational schooling and labor market outcomes performed for the National Center of Education Statistics and concerns educational determinants of women's labor market situations.[1]

This study's data base is the National Longitudinal Study of the High School Class of 1972.[2] The last followup data were collected in 1976. Changes in education, employment, and earnings for women and minorities over the past few years may have altered some specific findings, but our general results are still valid.

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1. Contract Number 300-78-0546. D.E. Wiley and A. Harnischfeger, High School Learning, Vocational Tracking, and What Then? (Evanston: CEMREL, Inc., 1980.)

2. The original study was initiated and carried out by the National Center for Education Statistics, U.S. Department of Health, Education, and Welfare. That study was conceived as a survey of a representative, national sample of high school seniors and their schools, using questionnaires that were completed by the seniors at their schools during spring of 1972, and simultaneously by school officials. Questions directed at the pupils focused on their backgrounds. experiences, attitudes, and plans; ability tests were also administered to them. Questions directed at school officials attempted to characterize the school's programs and facilities. Information from the school's records about the individual pupils who were tested and responded to the questionnaires was also collected.

The population that the study attempted to sample was all twelfth-graders enrolled during 1972 in all public and private schools in the 50 States and the District of Columbia. The initial sample survey has been followed by four additional

High School Track Selection

The entrance of one of three traditional high school tracks--academic, general, or vocational--is a very crucial point in a student's life. Prior achievement, student preferences, counseling and program availability are factors influencing this selection. Nearly all students reside in school districts that offer all three tracks, although the opportunities of courses and programs within them are quite varied. Thus, track selection seems to be determined more by characteristics and not by the track availabilities.

How is the high school population divided into tracks? A decomposition of the 1972 high school population reveals that males and females and blacks and whites are differentially represented in the three tracks[3] (Table 1). In terms of the total proportion of males among high school seniors, males are slightly overrepresented in the academic track. But this is solely due to a large overrepresentation of white males, since minority males are underrepresented in the academic track. White females are also enrolled in the academic track at a higher rate than their high school population quota, and black females are enrolled in the academic trac' at a lower rate.

The general track has an overrepresentation of minorities of both sexes and of males, due to the presence of minority males. White male students are in this track at their

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surveys of the originally sampled individuals and of a specially selected supplemental sample designed to compensate for defects found in the original sample and in the implementation of the original survey. The primary sample originally consisted of 1,200 schools and was targeted to a maximum of 18 pupils per school. In actuality, 1,044 schools and 17,726 pupils participated, of whom 16,683 completed the questionnaire. The supplementary sample consisted of 257 additional schools and 4,450 additional pupils. First followup (October 1973) questionnaires were sent to 23,654 individuals and were completed by 21,350. The second (October 1974) and third followup (October 1976) questionnaires were completed by 20,872 and 20,194 individuals, respectively. These questionnaires focused on the living conditions, work experiences, education and training, military service, family status, life experiences and opinions of these individuals. The data reported in this document were collected in the base year and the 1976 followup. The fourth followup survey had not been completed when this study was initiated.

3. The information concerning students' track membership was taken from questionnaires given to the school administration.

Table 1

Percentage Decomposition of Population of High School Tracks by Sex and Race, for High School Seniors

	Academic	General	Vocational	Total
White - Male	45.3	41.8	35.6	41.7
Female	43.2	34.0	44.5	40.4
Total	88.5	75.8	80.1	82.2
Black - Male	2.3	6.1	4.4	4.1
Female	3.3	7.5	5.9	5.4
Total	5.6	13.6	10.3	9.5
Other - Male	3.4	5.0	5.0	4.3
Female	2.6	5.5	4.6	4.0
Total	6.0	10.5	9.6	8.3
Total - Male	51.0	52.9	45.0	50.1
Female	49.1	47.1	55.0	49.9
Total	100.0	100.0	100.0	100.0

population share and, surprisingly, white females are heavily underrepresented. They are again overrepresented in the vocational track, which is also the case, to a lesser degree, for minority males. And white males are considerably underrepresented in this track. Generally, the vocational track has a large overrepresentation of females.

To summarize for the sex and racial groups:

-- White males are overrepresented in the academic track and they are underrepresented in the vocational track.

-- Black males are enrolled at a high rate in the general track. They are underrepresented in the academic track.

-- White females are greatly overrepresented in both the academic and vocational tracks. They are underrepresented in the general track.

-- Black females, like black males, are strongly overrespresented in the general track and considerably underrepresented in the academic track.

Thus, high school tracks have differential rates of selection of white and black males and females.

An immediately obvious question is whether race and sex directly represent selection criteria or whether they are only closely linked to the actual criteria. We investigated this issue; however, we encountered a serious obstacle in that we had no achievement test data for the time the sutdents were enrolled in the different programs. Instead, test data were only available for the students' performances at the end of high school. But we believe that the program gaps in achievement test score distributions are similar at the beginning and end of high school.

We compared the test score distributions for mathematics, reading, and vocabulary (Table 2, Figures 1, 2 and 3). The comparison of mean scores for black, white, male, and female students in the three tracks evenly supports the assumption that track selection is based on students' achievement levels, not, however, irrespective of race. The highest achievement level white and black students enroll in the academic track. But considerable differences exist in mean achievement scores between these two subpopulations: the white students' mean achievement scores in all three tested areas are considerably higher than those of black students, whose achievement levels more resemble those of general track white students. The differences between general and vocational track students' achievement averages are less obvious. It seems that the vocational track is attracting black male students who score at the lowest end on achievement tests. This is not the case for either black or white female students. The selection of

Table 2

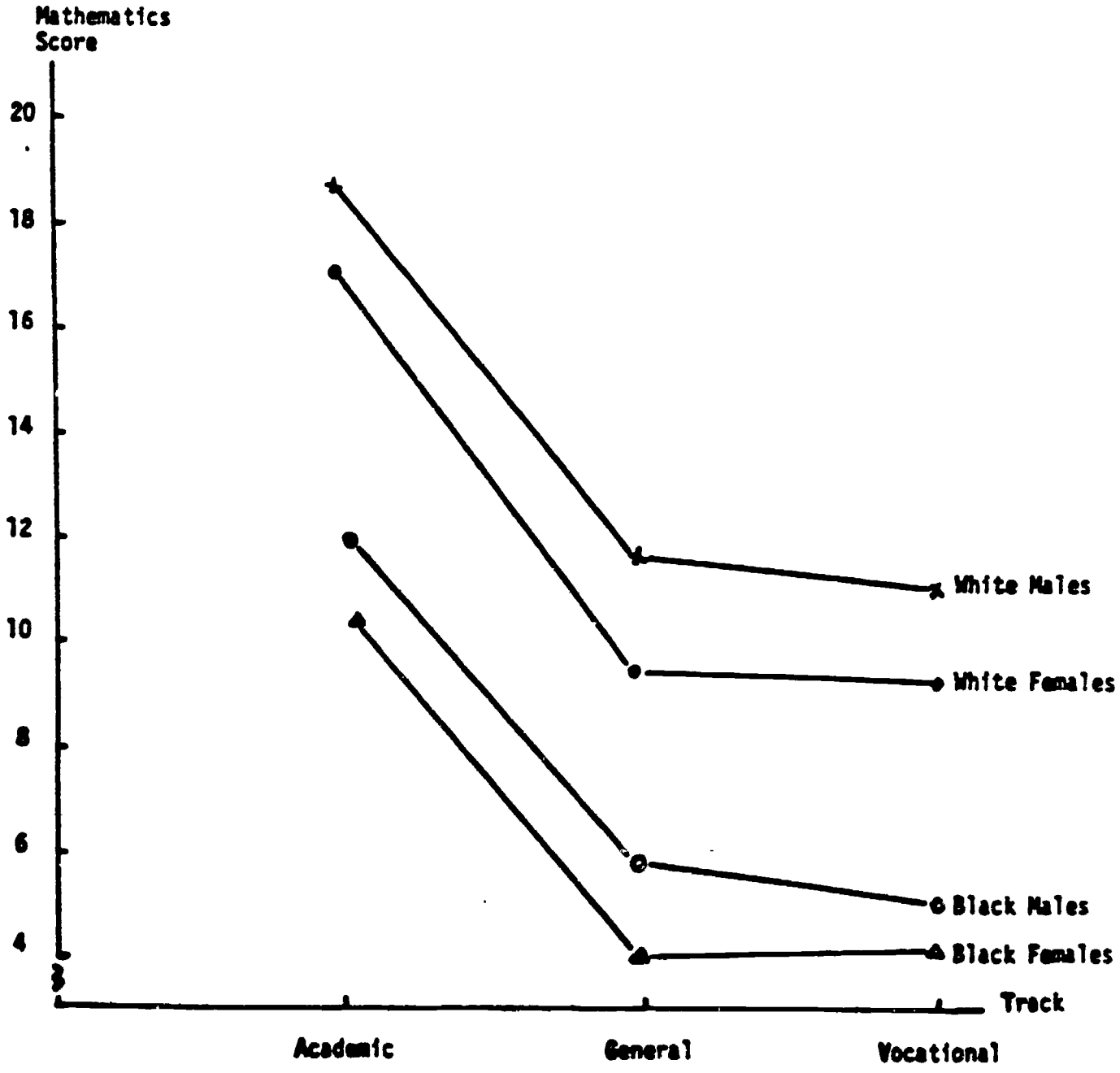
Means and Standard Deviations of Mathematics, Reading and Vocabulary Test Scores[a] By Sex, Race, and High School Track

	Academic		General		Vocational		Total	
Mathematics	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
White - Male	18.92	5.04	11.71	6.27	10.16	6.07	14.89	6.91
Female	17.18	5.38	9.63	6.04	9.43	5.95	13.25	6.87
Black - Male	12.02	6.85	5.92	5.54	5.10	4.34	7.24	6.35
Female	10.45	6.36	4.02	4.66	4.19	4.21	5.81	5.83
Reading								
White - Male	12.52	3.90	8.73	4.48	7.65	4.48	10.36	4.72
Female	12.86	3.98	8.63	4.75	8.54	4.20	10.66	4.75
Black - Male	8.84	5.01	4.60	4.08	4.25	4.18	5.56	4.79
Female	8.42	4.34	4.61	4.88	5.11	3.63	5.79	4.25
Vocabulary								
White - Male	8.58	3.67	5.51	3.69	4.70	3.41	6.84	4.01
Female	9.02	3.56	5.42	3.75	5.30	3.51	7.13	4.03
Black - Male	5.16	3.71	2.32	2.98	2.33	2.74	3.05	3.37
Female	4.95	4.10	2.33	2.71	2.69	2.58	3.15	3.30

a. Formula scores -- corrected for chances responses.

Figure 1

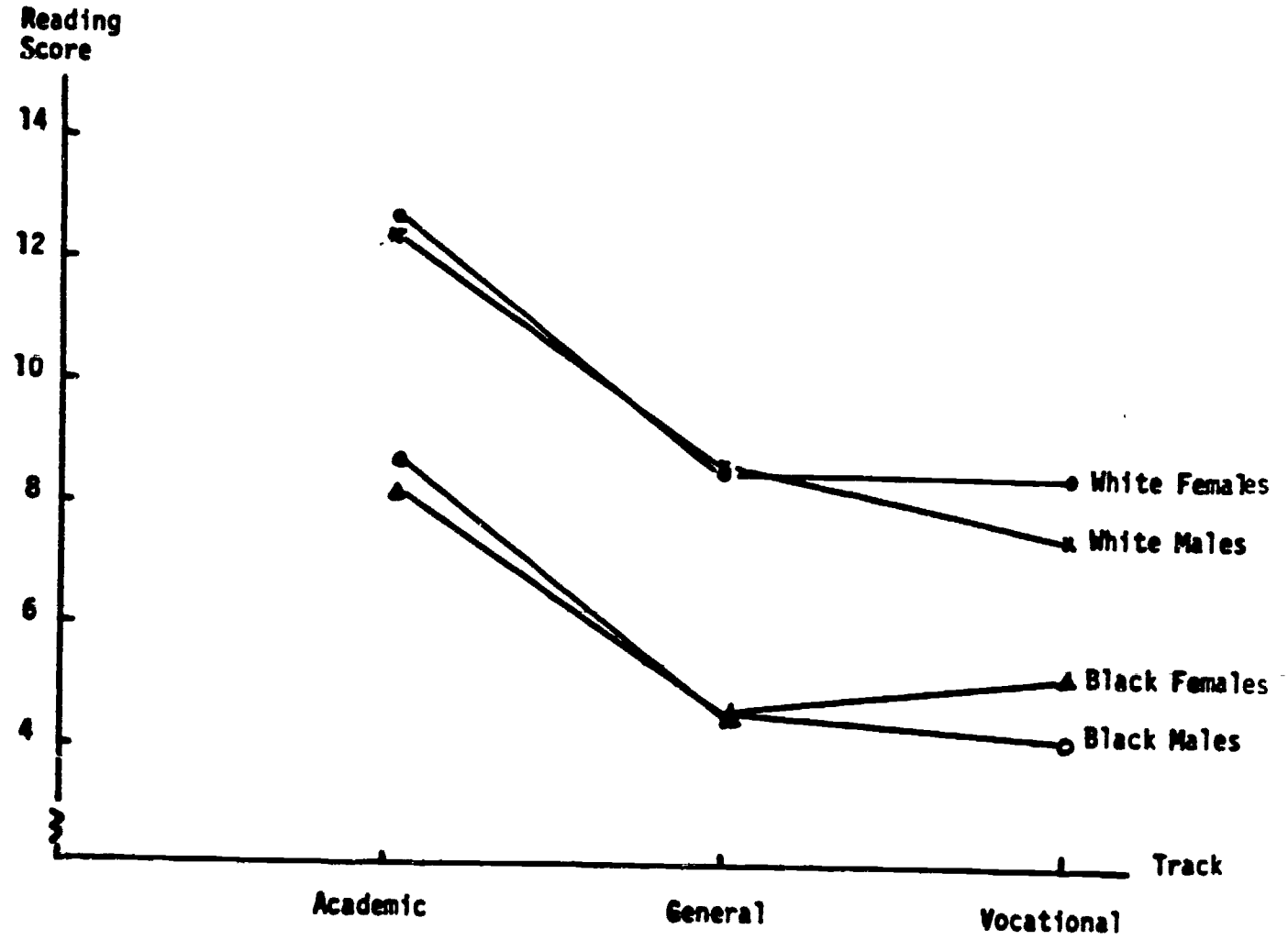
Means of Mathematics Scores by Sex, Race, and High School Track



SOURCE: Table 2.

Figure 2

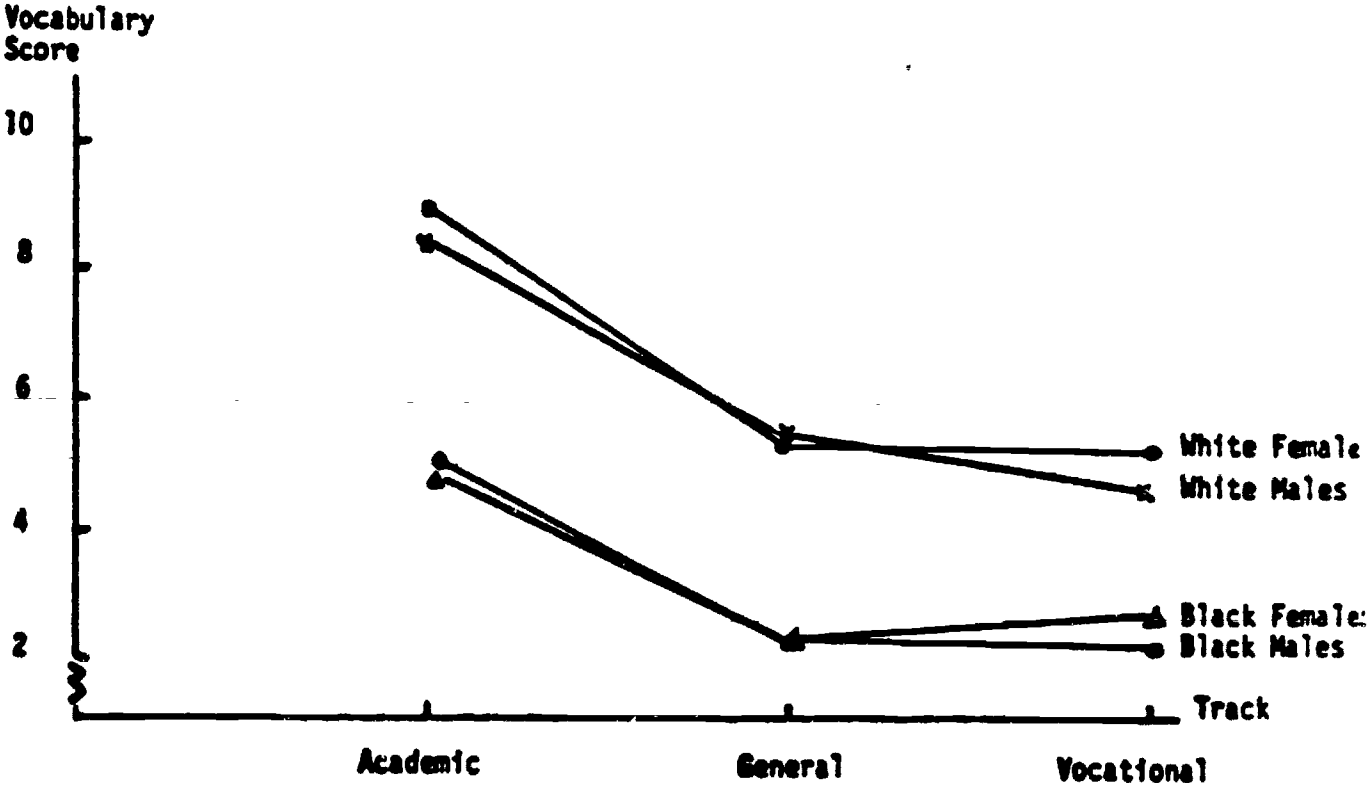
Means of Reading Scores by Sex, Race, and High School Track



SOURCE: Table 2.

Figure 3

Means of Vocabulary Scores by Sex, Race, and High School Track



SOURCE: Table 2.

the vocational track by these female students also seems to be based on other criteria, such as preparation for immediate entry into the work force. Typically, white students in general and vocational tracks also score considerably higher than their black counterparts on the three test areas selected for scrutiny: reading, vocabulary, and mathematics. Generally, for male students the track selection process is clearly based on achievement related to race. As intended, the vocational track attracts the lowest male achievers. This is not quite the case for female students; it seems probable that in addition to achievement and race, specific labor force participation expectations enter into their choice resulting in considerably higher enrollment rates of white females in vocational programs.

Since achievement differences are less pronounced, on the average, among females in the general and vocational tracks, the question arises: What consequences might track selection have for white and black females? Are there consequent differences from these courses that effectively bear on later earnings, or does the track label itself have weight on labor market success?

High School Course Taking

Total weekly course hours and course taking in certain curricular areas over the last 3 years of high school shed light on this issue (Table 3). In general, we found that academic track students average fewer course hours per week than general and vocational track students and female academic track students average the lowest number of course hours. Females in the vocational track, however, accumulate considerably more course hours than any other group. These extra hours, however, do not accumulate from taking courses in the basic curricular subject matter areas. On the contrary, the hardcore curricular areas--science, foreign language, English, and mathematics--show fewer course hours for female high school students than for males, and within the track, white females average the fewest hours in these subjects. Course hours in social studies show fewer discrepancies within track. Females in general and vocational tracks take even less art and industrial arts courses than male students. Where then do female students accumulate the additional course hours? Commercial and vocational course areas are the only subjects in which female sudents enroll more often. Since commercial courses also have a vocational orientation, this means that females not only enroll at a higher rate in vocational programs, but they typically take many more courses which are either vocational or have a vocational orientation. Since vocational education funds are generally allocated on the basis of course, vocational track or program enrollment, this also means that females receive a considerably higher

Table 3

Average[a] Weekly Hours of Instruction in Selected Curricular Areas and Total Instructional Hours Per Week by Race, Sex, and High School Track

	Academic	General	Vocational
Science, Foreign Language, English, Mathematics			
White - Male	13.69	10.35	8.52
Female	13.05	9.49	8.16
Black - Male	13.72	10.12	9.11
Female	13.33	10.09	8.94
Social Studies			
White - Male	3.76	4.21	3.69
Female	3.70	4.03	3.58
Black - Male	3.92	4.05	3.67
Female	3.71	4.00	3.70
Art, Industrial Arts			
White - Male	1.77	3.35	3.56
Female	1.83	2.10	1.01
Black - Male	1.88	2.90	2.36
Female	1.61	1.33	1.15
Commercial			
White - Male	0.88	1.47	1.25
Female	1.46	3.01	5.52
Black - Male	1.00	1.13	0.88
Female	1.46	2.26	3.88
Total Vocational			
White - Male	1.26	2.94	5.68
Female	1.72	4.22	6.50
Black - Male	1.40	2.81	5.01
Female	2.29	3.67	6.41
Total Weekly Hours			
White - Male	21.34	22.32	22.69
Female	21.77	22.83	24.79
Black - Male	21.91	21.00	21.04
Female	22.41	21.35	24.07

a. Average over the last three years of high school.

share of Federal, State and local vocational education funds. The next section will discuss the types of female program enrollment and how course selection affects later labor market success.

Student Composition of Vocational High School Programs

Focusing on vocational track students (Table 4), we found that more than three-quarters of all female vocational education students (77.4 percent) enter the area of "business and office."[4] Thus, vocational training for females is nearly synonymous with training for office and secretarial occupations. All other vocational program areas have low female enrollment rates, even "home economics" (7.4 percent).[5] Male student enrollment distribution in vocational programs is likewise uneven. Nearly 70 percent of all male vocational track students were enrolled in programs preparing for "trade and industrial occupations." The program with the next highest enrollment for males was "agriculture" (currently called "agribusiness occupations") with nearly 12 percent. Thus, vocational high school education for males is frequently training for a variety of equipment repair and maintenance jobs and some construction occupations such as carpentry and electricity. Of all male twelfth-graders in 1972, 15.4 percent received vocational training for these occupations, and of all female twelfth-graders, 20.9 percent were receiving vocational training for office occupations.

But these are not the only male and female vocational (and consequently occupational) areas, there are also differential representations of blacks and whites in certain fields (Table 5). Black males tend to be overrepresented in agricultural programs-- presumably due to the rural South--and black females enter the fields of "health" and "home economics" at a higher rate. The only field that does not show strong sex stereotyping and that represents blacks according to their rate of vocational track enrollment is "marketing and distribution" (programs preparing for sales occupations in all areas).

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4. See Addendum for a listing of the vocational fields used to classify occupational programs and curricula.

5. It is important here to realize that we are addressing vocational programs not course enrollment: While only 2 percent of all female students were enrolled in a "home economics" program, 39 percent of all female students took at least one home economics course.

Table 4

Selection Rates of Vocational Track Pupils into Vocational Programs by Race, and Sex

(Percent)

Vocational Program[a]	White		Black		Total[b]	
	Male	Female	Male	Female	Male	Female
Agri-Business	11.5	0.2	14.4	0.0	11.9	0.4
Business & Office	10.0	79.9	8.4	63.7	9.5	77.4
Marketing & Distribution	7.9	6.4	8.5	6.2	8.1	6.7
Health	0.0	2.8	0.9	4.8	0.2	2.9
Home Economics	0.2	5.9	2.0	16.3	4.5	7.5
Trade & Industrial	70.3	4.7	65.7	9.1	69.8	5.1
Total Vocational	100.0	100.0	100.0	100.0	100.0	100.0

a. Program titles have been relabled to reflect current practice.

b. Includes other nonwhites and Hispanics.

Table 5

Composition of Vocational High School Programs[a]: Race and Sex

(Percent)

		Agri-Business	Business & Office	Marketing & Distribution	Health	Home Economics	Trade & Industrial	Total Vocational
White -	Male	73.6	7.6	38.3	0.6	2.1	73.1	35.6
	Female	1.8	75.9	39.1	73.5	61.5	6.1	44.5
	Total	75.4	83.4	77.4	74.1	63.6	79.2	80.1
Black -	Male	11.3	0.8	5.1	2.4	2.1	8.4	4.4
	Female	0.0	8.0	5.0	16.4	22.3	1.6	5.9
	Total	11.3	8.8	10.1	18.8	24.4	10.0	10.3
Other -	Male	11.6	0.8	6.3	3.0	0.6	10.2	5.0
	Female	1.7	7.0	6.2	4.2	11.4	0.6	4.6
	Total	13.3	7.7	12.5	7.1	12.0	10.9	9.6
Total -	Male	96.5	9.1	49.7	6.0	4.7	91.7	45.0
	Female	3.5	90.9	50.3	94.0	95.3	8.3	55.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a. Program titles have been relabeled to reflect current practice.

b. Includes other nonwhites and Hispanics.

But occupational sex stereotyping would hardly be an issue if it were not related to earnings, and high school track selection would be of no political relevance if it were unrelated to postsecondary education and success in the labor force. In what follows, we shall discuss some of the consequences of high school track enrollment and occupational program selection.

Postsecondary Education

We have shown above that tracking is related to student achievement, in that the highest achievers among blacks and whites enroll in the academic track. Male students at the low end of the achievement scale enter the vocational track and male students with middle-level achievement scores tend to enter the general high school track. A differentiation of vocational and general track membership on the basis of achievement test scores was not obvious for female students. Females with similar achievement levels are found in both the general and the vocational tracks.

We have also shown that tracking is related to course taking in total hours as well as in subject matter area. Our most striking finding was that while female vocational students accumulate by far the most course hours, they (as vocational track students in general) take only a few courses in the more demanding subject areas: science, English, mathematics, and foreign languages. This is especially true for white females in the vocational track.

As both course taking and achievement are important factors for participation in postsecondary education, we considered the High School Class of 1972 in two aspects:

(1) How does track membership relate to course requirements for college entrance set by selected institutions?

(2) How does track membership relate to actual postsecondary education for this high school class 4 years after graduation (1976)?

To answer the first question, we related students' actual course taking to course requirements for college admission into three institutions which were selected arbitrarily (Table 6): Harvard, Northern Michigan, and Purdue Universities. We did not consider achievement and other factors affecting actual admission decisions, we only determined the rate at which black and white males and females in the three high school tracks satisfied the specified course requirements.

As expected, vocational track students had a considerably lower rate of satisfying any of the three institutions'

Table 6

Rates of Satisfaction of Colleges' Course Entrance Requirements by Sex, Race, and High School Tracks

	Harvard			Northern Michigan			Purdue		
	Academic	General	Vocational	Academic	General	Vocational	Academic	General	Vocational
White - Male	9.41	1.43	0.14	43.40	12.12	6.44	70.93	41.55	29.68
Female	11.64	0.53	0.50	28.97	5.38	2.21	63.26	28.05	17.40
Black - Male	8.14	0.18	0.00	42.41	11.12	4.01	71.10	41.05	31.65
Female	10.19	0.37	0.00	33.93	7.03	2.77	64.67	40.73	24.85

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requirements. They had the best chances of fulfilling necessary course requirements in technically oriented institutions such as Purdue University. Between 25 and 32 percent of black female vocational education students met Purdue's course requirements in 1972. Very few students in the vocational track (except a few white females) met Harvard's course requirements. This contrasts with between 8 percent of black male and 12 percent of white female academic track students who fulfilled Harvard's course requirements and between 63 percent of white females and 71 percent of black males meeting Purdue's standards. The general track students' comparable percentages range between those for the vocational and academic tracks.

Our finding is important for the selection of a general or vocational track for girls. Knowing that, on the average females in general tracks have achievement scores close to those of females in vocational tracks, we conclude that because general track females are more likely to fulfull course requirements for entrance into postsecondary institutions, females from vocational tracks bear an unwarranted disadvantage for access into postsecondary education.

The second question raised above addresses actual participation in postsecondary education four years after high school graduation. In 1976, only about 14 percent of white males, black males, and white females and 22 percent of black females, all of whom were academic track graduates, had not had any postsecondary education (Table 7). The majority of academic track students had more than 2 years of postsecondary education. Most important though is the comparision of general and vocational track students, especially for females, because of their similar achievement scores. About 51 percent of white girls and 42 percent of black girls who graduated from the high school general track had not received any postsecondary education four years after high school graduation. The corresponding numbers for the vocational track are 64 and 48 perent. Thus, most females who were enrolled in vocational high school programs in 1972 were not oriented towards post-high school education. Surprisingly, this is especially true for white females. Black females engaged in some postsecondary training at a considerably higher rate. While 52 percent of vocational track black females engaged in some post-high school training, this was the case for only 36 percent of white females. General track white females fared much better, as 49 percent continued some education after high school. But white females did so at a lower rate than black females of whom 58 percent engaged in postsecondary education. Actually, black females continue their post-high school education at a rate higher than that for white and black males in both the general and vocational

Table 7

Postsecondary Education of 1972 High School Seniors in 1976 by Sex, Race, and High School Track

(Percent)

		Postsecondary Training	
Academic	No Training	Less Than 2 Years	2 Years or More
White - Male	14.04	19.69	66.26
Female	14.22	21.14	64.63
Black - Male	13.74	28.10	58.15
Female	22.26	20.79	56.95
General			
White - Male	46.38	27.33	26.30
Female	50.82	30.28	18.90
Black - Male	47.11	32.72	20.18
Female	42.20	38.55	19.26
Vocational			
White - Male	58.45	21.21	19.83
Female	63.95	24.09	11.96
Black - Male	51.88	26.45	21.67
Female	47.72	32.81	19.46

tracks. However, black and white females are more likely than white and black males to continue postsecondary education for fewer than 2 years.

Our analyses can be summarized as follows:

-- About 86 percent of academic track students continue post-high school education except for black females whose continuation rate is only 78 percent. White males and females tend to complete more than two years of postsecondary education at about the same rate (males: 66 percent; females: 65 percent) which is considerably higher than the corresponding rates for blacks (males: 58 percent; females: 57 percent), who more often complete fewer than 2 years of postsecondary education.

-- As expected, general track students continue their post-high school education at a much lower rate, and if they enter into postsecondary education they are more likely to complete fewer than 2 years of training. Surprisingly, we found that, of the 4 general track groups, black females have the highest rate of postsecondary education and white females, the lowest.

-- Graduates from vocational high school programs enter postsecondary education at a considerably lower rate than general track students. It is remarkable that blacks actually had a higher rate of post-high school education than whites, especially when considering the low achievement scores of black males. White female vocational education graduates have by far the lowest rate of postsecondary education.

From these analyses, it becomes obvious that track membership is one strong factor influencing postsecondary education. It seems that track and educational expectations or aspirations are strongly intertwined.

Earnings and Employment

If students of comparable achievemnt but different high school track membership have different likelihoods of entering postsecondary education, then the question remains whether female vocational high school track graduates had an advantage in their wage rates and employment over general track graduates.

In 1976, 4 years after high school graduation, we found that white females who graduated from vocational tracks worked about the same number of hours as females who came from general high school tracks (Table 8); black general track females worked, on the average, somewhat fewer hours which could be explained by the higher rate at which they

Table 8

1976 Hours of Work Per Week and Hourly Wage Rate,

by Race, Sex, and High School Track

	Track			
Hours Worked Per Week	Academic	General	Vocational	Total
White - Male	38.8	42.3	44.0	41.1
Female	34.5	37.6	37.0	35.8
Black - Male	36.8	40.3	39.0	39.5
Female	34.7	37.1	39.9	36.5
Hourly Wage Rate ($)				
White - Male	4.52	4.52	4.70	4.57
Female	4.00	3.58	3.47	3.77
Black - Male	4.20	4.19	4.35	4.22
Female	3.44	3.66	3.61	3.60

participated in postsecondary education or the type of jobs they entered. Typically, males worked more hours than females, which is, presumably, a consequence of occupational sex stereotyping.

Wage rates and unemployment histories are more important and more revealing of labor force success than total weekly hours of work. (Table 8). Comparing students from the three tracks 4 years after graduation shows that male students from vocational tracks still have hourly wage rates above students from general and academic tracks. However, this might be due in part to the fact that academic and general track students who participate at a higher rate in postsecondary education have just entered the labor market in 1976, 4 years after graduation. If, however, we consider the fact that male vocational track students have lower achievement scores, on the average, than other students, then we might believe that the selection by these students of vocational high school programs actually increased their hourly wage rates. This is not so for females. The hourly wage rates of females who graduated from general tracks are above those of vocational track females and this is true despite their similar achievement test scores and despite the high number of vocational courses that have prepared them better for the occupations (mostly "business and office") in which vocational and general track students compete in the labor market. Obviously, other factors are at issue. More paramount, white females earn less than black females.

But at the same time, these white females lose their jobs less frequently than black females. Twelve percent of white females who graduated from vocational tracks were unemployed one or more times between 1972 and 1976 as compared to 31 percent of female black vocational track graduates. The fact that females who graduated from general tracks had lower unemployment rates than females from vocational tracks is noteworthy.

Some Issues For Reflection and Policy

High school track membership strongly influences both participation in postsecondary education and earnings. Enrollment in high school tracks for males seems to be sharply based on achievement levels: academic, high; general, middle; vocational, low. This is not true for females. Girls entering general and vocational tracks had comparable achievement levels. Achievement levels were drastically different for blacks and whites: Academic track blacks achieved about the same level as whites in general or vocational tracks and blacks in vocational programs had far lower academic performance than their white track mates.

Participation in postsecondary training is related to track membership. About 86 percent of academic track students (except black females) continued their education after high school. More than half of general track students (except white females) engaged in some training after high school. But students who graduated from vocational high school tracks have lower rates of participation in postsecondary education. Black females from both general and vocational tracks have the highest rates of these track students for postsecondary education participation.

Earnings of males and females who graduated from general and vocational tracks showed opposite trends. Four years after graduating (1976), males from vocational programs had higher hourly wage rates than males who graduated from general tracks. The opposite was true for females. General track females had higher wage rates than vocational track females, and black females had higher hourly wage rates than white females and black females, and black females had higher hourly wage rates than white females and black males. However, black females who graduated from general and vocational tracks experienced the most unemployment. The differential in hourly wage rates between males and females seems to be strongly related to occupational sex sterotyping, since many women entered occupational fields that have lower hourly wage rates than typical male occupations. This unwarranted occupational sex stereotyping is one area where Federal policy can induce change and some change has occured since 1972, when these data were collected.

The most striking finding concerns white females who graduated from general and vocational tracks. Despite the fact that their achievement levels were considerably higher than those of blacks, they had the lowest rate of postsecondary education and had lower hourly wage rates than black females. Our analysis shows white female vocational graduates to be in the worst position. Their academic performance level resembled that of general track females and yet they had the lowest rate of postsecondary training and the lowest female wage rate. Black female general and vocational track graduates experienced the greatest instability. Despite more education and higher wage rates, they were unemployed most often.

Track selection could be influenced via high school counseling, but the vocational curricula in the typical female occupational areas should be of great concern. Vocational programs have to better prepare students for higher earning occupations and should not foreclose access to postsecondary training. Female students from vocational programs should be able to successfully compete with general track students, otherwise it would be an improvement to abolish vocational programs for girls.

Addendum

Listing of Vocational Fields Used to Classify Occupational Programs and Curricula

01	AGRI-BUSINESS OCCUPATIONS
01.01	Agricultural Production
01.02	Agricultural Supplies/Services
01.03	Agricultural Mechanics
01.04	Agricultural Products
01.05	Ornamental Horticulture
01.06	Agricultural Resources
01.07	Forestry
01.99	Agriculture, Other

04	MARKETING & DISTRIBUTION OCCUPATIONS
04.01	Advertising Services
04.02	Apparel and Accessories
04.03	Automotive
04.04	Finance and Credit
04.05	Floristry
04.06	Food Distribution
04.07	Food Services
04.08	General Merchandise
04.09	Hardware, Building Materials
04.10	Home Furnishings
04.11	Hotel and Lodging
04.12	Industrial Marketing
04.13	Insurance
04.14	International Trade
04.15	Personal Services
04.16	Petroleum
04.17	Real Estate
04.18	Recreation and Tourism
04.19	Transportation
04.20	Retail Trade, Other
04.21	Wholesale Trade, Other
04.99	Distributive Education, Other

14	BUSINESS & OFFICE OCCUPATIONS
14.01	Accounting & Computing Occ.
14.02	Bus. Data Processing Systems Occ.
14.03	Filing, Office Mach., Clerical Occ.
14.04	Information Communication Occ.
14.05	Materials Support Occupations
14.06	Personnel, Training & Related Occ.
14.07	Steno, Secretarial & Related Occ.
14.08	Supervisory & Admin. Mgmt. Occ.
14.09	Typing and Related Occupations
14.99	Office Occupations, Other

07	HEALTH OCCUPATIONS
07.0101	Dental Assisting
07.0102	Dental Hygiene (Associate Degree)
07.0103	Dental Laboratory Technology
07.0199	Dental, Other
07.0201	Cytology (Cytotechnology)
07.0202	Histology
07.0203	Medical Laboratory Assisting
07.0204	Hematology
07.0299	Medical Laboratory Technology, Other
07.0301	Nursing (Associate Degree)
07.0302	Practical (Vocational) Nursing
07.0303	Nursing Assistant (Aide)
07.0399	Nursing, Other
07.0401	Occupational Therapy
07.0402	Physical Therapy
07.0499	Rehabilitation Services, Other
07.0501	Radiologic Technology (X-ray)
07.0502	Radiation Therapy
07.0503	Nuclear Medical Technology
07.0599	Radiologic, Other
07.06	Ophthalmic
07.07	Environmental Health
07.08	Mental Health Technology
07.0901	Electroencephalograph Technology
07.0902	Electrocardiograph Technology
07.0903	Inhalation Therapy
07.0904	Medical Assisting (Physicians' Office)
07.0905	Community Health Aide
07.0909	Mortuary Science
07.0999	Misc. Health Occupations, Other
07.99	Health Occupations, Other

17.1004	Masonry
17.1005	Painting and Decorating
17.1006	Plastering
17.1007	Plumbing and Pipefitting
17.1008	Drywall Installation
17.1009	Glazing
17.1010	Roofing
17.1099	Construction & Maintenance Trades, Other
17.11	Custodial Services
17.12	Sheet Mechanic
17.13	Drafting Occupations
17.14	Electrical Occupations

16	**TECHNICAL OCCUPATIONS**
16.0101	Aeronautical Technology
16.0102	Agricultural Technology
16.0103	Architectural Technology
16.0104	Automotive Technology
16.0105	Chemical Technology
16.0106	Civil Technology
16.0107	Electrical Technology
16.0108	Electronic Technology
16.0109	Electromechanical Technology
16.0110	Environmental Control Technology
16.0111	Industrial Technology
16.0112	Instrumentation Technology
16.0113	Mechanical Technology
16.0114	Metallurgical Technology
16.0115	Nuclear Technology
16.0116	Petroleum Technology
16.0117	Scientific Data Processing
16.02	Agricultural - Related Technology
16.03	Health - Related Technology
16.04	Office - Related Technology
16.05	Home Economics - Related Technology
16.0601	Commercial Pilot Training
16.0602	Fire & Fire Safety Technology
16.0603	Forestry Technology
16.0604	Oceanographic Technology
16.0605	Police Science Technology
16.0699	Misc. Technical Education, Other
16.9901	Air Pollution Technology
16.9902	Water and Waste Water Technology

09	**HOME ECONOMICS**
09.01	Homemaking: Personal, Home and Family
09.0102	Child Development
09.0103	Clothing and Textiles
09.0104	Consumer Education
09.0106	Family Relations
09.0107	Foods and Nutrition
09.0108	Home Management
09.0109	Housing and Home Furnishings
09.0199	Homemaking, Other
09.02	Home Economics: Occupational Preparation
09.0201	Care and Guidance of Children
09.0202	Clothing Mgmt., Production and Services
09.0203	Food Management, Production and Services
09.0204	Home Furnishing, Equipment and Services
09.0205	Institutional & Home Management & Services
09.0299	Home Economics: Occupational, Other

17.15	Electronics Occupations
17.16	Fabric Maintenance Services
17.17	Foreman, Supvr., & Mgmt. Development
17.19	Graphic Arts Occupations
17.20	Industrial Atomic Energy Occupations
17.21	Instrument Maint. & Repair Occupations
17.22	Maritime Occupations
17.23	Metalworking Occupations
17.24	Metallurgy Occupations
17.2401	Barbering
17.2402	Cosmetology
17.2499	Personal Services, Other
17.27	Plastics Occupations
17.2801	Fireman Training
17.2802	Law Enforcement Training
17.2899	Public Service Occupations, Other
17.29	Quantity Food Occupations
17.30	Refrigeration
17.31	Small Engine Repair, Internal Combustion
17.32	Stationary Energy Sources Occupations
17.33	Textile Production and Fabrication
17.34	Leatherworking
17.35	Upholstering
17.36	Woodworking Occupations
17.99	Trade & Industrial Occupations, Other

17	**TRADE & INDUSTRIAL OCCUPATIONS**
17.01	Air Conditioning Instal. & Repair
17.02	Appliance Repair
17.0301	Body and Fender Repair
17.0302	Auto Mechanic
17.0303	Auto specialization Repair
17.0399	Automotive Services, Other
17.0401	Aircraft Maintenance
17.0402	Aircraft Operations
17.0403	Ground Operations
17.05	Blueprint Reading
17.06	Business Machine Maintenance
17.07	Commercial Art Occupations
17.08	Commercial Fishery Occupations
17.09	Commercial Photography Occupations
17.1001	Carpentry, Construction
17.1002	Electricity, Construction
17.1003	Heavy Equipment Maint. Operations

THE IMPACT OF VOCATIONAL EDUCATION IN SECONDARY SCHOOLS ON YOUNG MEN AND YOUNG WOMEN: A REVIEW OF RECENT RESEARCH

by

Arvil V. Adams

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THE IMPACT OF VOCATIONAL EDUCATION IN SECONDARY SCHOOLS ON YOUNG MEN AND YOUNG WOMEN: A REVIEW OF RECENT RESEARCH

Introduction

Passage of the Smith Hughes Act in 1917 stated the Federal interest in vocational education and supported its development in secondary schools. Today approximately one out of four secondary students is enrolled in a vocational curriculum offering an organized set of courses designed for those planning to enter nonprofessional careers or occupations. The curriculum typically includes programs in agriculture, retail sales, home economics, the trades, business and office education, and industrual arts. Many more students enrolled in general and academic curricula take one or more vocational education courses.

Vocational education in its broadest sense is expected to promote economic growth and social welfare through developing marketable skills and providing an array of schooling options responsive to differences in needs, interests, and abilities. Both the manner and the extent to which thi. goal is accomplished for young men and young women, however, are the subjects of a continuing debate about vocational education in secondary schools. This debate revolves around the sex stereotypic nature of participation in vocational education and the forces that influence the curriculum choices of each sex and the schooling and labor market outcomes related to these choices.

Within secondary schools proportionately more young women than young men participate in vocational education. Young women are clustered in business and office education and young men in agriculture, trade and industrial education, and industrial arts. The potential contribution of these patterns to differences in economic and social opportunities by sex through reinforcing occupational sex stereotyping in the labor market has stimulated interest in the forces shaping these patterns and the schooling and the related labor market outcomes. Understanding these issues is important to the development of effective public policies concerned with improving the economic status of women.

These issues were recently examined in three separate studies of vocational education in secondary schools. In a 1979 study published by the Carnegie Council on Policy Studies in Higher Education, John Grasso and John Shea examined forces influencing the curriculum choices of young men and young women and the schooling and labor market outcomes related to these choices.[1] Their study used data from the National Longitudinal Surveys (NLS) of young men who were 14 to 24 years of age when first interviewed in 1966 and young women who were the same age when interviewed initially in 1968. The data included followup interviews through 1973 for the young men and 1972 for the young women.

The Grasso-Shea study was followed by two additional studies in early 1980. The first was prepared by Sandra Hofferth at the Urban Institute with support from the National Institute of Education.[2] This study also used NLS data and included followup interviews through 1975 for the young men and the young women. The second was prepared by David Wiley and Annegret Harnischfeger of CEMREL, Inc. with support from the National Center for Education Statistics.[3] Their study was based on data from the National Longitudinal Study of the High School Class of 1972 and included followup interviews through 1976.

This paper will review these studies, highlight their important findings, and discuss their policy implications. The three studies offer some unique insights into the curriculum selection process in secondary schools and the outcomes that follow from this process for young men and young women. The studies differ, however, in their approaches to these issues with some important consequences. These differences include the data used, the population studied, and the analytical methods employed.

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1. John T. Grasso and John R. Shea, Vocational Education and Training: Impact on Youth (Berkeley: Carnegie Council on Policy Studies in Higher Education, 1979).

2. Sandra Hofferth, High School Experience in the Attainment Process of Non-College Boys and Girls: When and Why Do Their Paths Diverge? Working Paper 1303-01 (Washington, D.C.: The Urban Institute, 1980).

3. David Wiley and Annegret Harnischfeger, High School Learning, Vocational Tracking, And What Then? (Evanston, Ill.: CEMREL, Inc., 1980).

Differences in Approach

To a large degree the sources of data determined the issues addressed by the three studies. The Grasso-Shea and Hofferth studies, for example, which used NLS data, are better equipped to examine the forces influencing curriculum choice. The NLS interviews were completed with many respondents in the early secondary grades before their curriculum choices were made. This permitted the collection of several sensitive measures involving attitudes and aspirations prior to the curriculum choice and allowed the testing of a more fully specified longitudinal model including these antecedents. By comparison, respondents in the High School Class of 1972 were interviewed initially during their twelfth grade years, precluding the collection of prospective data on variables that could influence curriculum choice.

The Grasso-Shea and Hofferth studies are also better able to measure some of the schooling effects associated with curriculum choice. The Wiley-Harnischfeger study is limited in this regard because those who left school prior to the twelfth grade year were not included in the High School Class of 1972. Consequently, this precludes analysis of vocational education's effect on secondary school retention and completion and biases analysis of its effect on educational attainment. Using NLS data, the Grasso-Shea and Hofferth studies offer a less contemporary view of vocational education, but are able to analyze the labor market effects of curriculum choice over a longer period of time.

From another perspective, however, the Grasso-Shea and Hofferth studies are based on a less reliable measure of the secondary school curriculum. The NLS used a self-assessment approach that asked respondents about their secondary school curriculum and classified them according to their responses. This approach is known to produce reporting errors and is considered less reliable than the alternative used by the High School Class of 1972 which consulted school records. The High School Class of 1972 also collected information about the courses taken and the hours of instruction involved from these records. This difference favors the Wiley-Harnischfeger study.

Another difference is the variation in years of schooling completed among the populations studied. This is important to the measurement of other schooling effects associated with curriculum choice. The effect of curriculum choice on postsecondary educational attainment, for example, cannot be examined in the Hofferth study because it restricts the population to those completing 12 or fewer years of schooling. The Grasso-Shea study, on the other hand, which

includes those completing 10 to 15 years of schooling, provides for this analysis, but leads to biased estimates of the years of postsecondary education attained given the exclusion of those with 16 or more years of schooling. The problem is also present to a lesser degree in the Wiley-Harnischfeger study which includes those with 12 to 16 years of schooling.

The three studies also differ in their methods of analysis. The Hofferth study creates three cohorts comprised of those 3, 5, and 10 years beyond their last year in school. The schooling and labor market effects of curriculum choice are examined for each cohort with the results interpreted as short-, intermediate-, and long-term effects, respectively. A similar approach is used in the Wiley-Harnischfeger study which examines these effects for the High School Class of 1972 4 years beyond their last year in school. The Grasso-Shea study, however, does not measure these effects in fixed temporal terms. Instead, the study uses NLS data from the more recent survey available to examine schooling and labor market effects allowing variation in the length of time beyond a respondent's last year in school.

The Grasso-Shea study relies primarily on cross-tabular analysis although it includes some multiple regression analysis. The Hofferth and Wiley-Harnischfeger studies, on the other hand, rely largely on multiple regression analysis. These differences lead to some trade-offs in the precision of estimation and scope of analysis. Using cross-tabular analysis, the Grasso-Shea study does not include estimates in cells with less than 25 observations. The precision provided by this approach doubtless exceeds that of the multiple regression approach in Hofferth and Wiley-Harnischfeger where no such controls are employed. The precision of cross-tabular analysis, however, has to be weighed against the method's limitations in controlling for more than a few variables simultaneously in any relationship. This naturally limits the scope of analysis. The multiple regression approach is more flexible in this regard.

Recursive models exploiting the longitudinal data are used by each study to examine curriculum choices and their outcomes. The models tend to be eclectic in nature. The Grasso-Shea and Wiley-Harnischfeger studies share a common weakness in their failure to discuss these models and their estimation in the context of a literature. At a minimum, the Wiley-Harnischfeger study should cite and discuss the earlier Grasso-Shea study. Another problem involves the complexity of some models and the format in which their estimates are presented. This problem is largely restricted to the Hofferth and Wiley-Harnischfeger studies. The Hofferth study using

multiple regression analysis to estimate some of the labor market outcomes related to curriculum choices employed 35 or more independent variables for this purpose. This complexity, without discussing the accompanying collinearity, detracts from the analysis'credibility. The failure of the Wiley-Harnischfeger study to report its regression results in a standard format including coefficient standard errors, F-statistics, and other summary statistical measures provides little information for secondary analysis of the results.

On the whole, the Grasso-Shea study can be viewed as contributing more to the debate surrounding vocational education in secondary schools than either the Hofferth or Wiley-Harnischfeger studies. It addresses more of the issues involved in this debate and is more carefully crafted and expressed. However, these differences notwithstanding, many of the findings in the Hofferth and Wiley-Harnischfeger studies are consistent with those of the Grasso-Shea study indicating perhaps the robustness of the findings. From this perspective, the differences in approach, while limiting direct comparisons in some cases, play an important role in measuring the sensitivity of the findings.

Forces Influencing Curriculum Choices

The sex stereotypic nature of curriculum choices in secondary schools is best described in the Grasso-Shea study,[4] which also includes comparisons for blacks and whites. The picture emerging supports the view that curriculum choices reinforce sex stereotyping in the labor market. Young women are one-and-a-half or two times more likely than young men to be enrolled in a vocational curriculum (Table 1), but are overwhelmingly concentrated in traditional business and office education programs. Only a small fraction are found in the trade and industrial programs dominated by young men. Even though young women are slightly more likely than young men to be enrolled in an academic or college preparatory curriculum, their enrollment typically leads to postsecondary training in traditional fields such as health and education. Blacks of both sexes are more likely than whites to be enrolled in general curriculum.

The forces influencing these patterns are examined longitudinally by the Grasso-Shea and Hofferth studies. The analysis in Wiley-Harnischfeger using the High School Class of 1972 is cross-sectional. Although their models

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4. Grasso and Shea, pp. 12-40.

Table 1

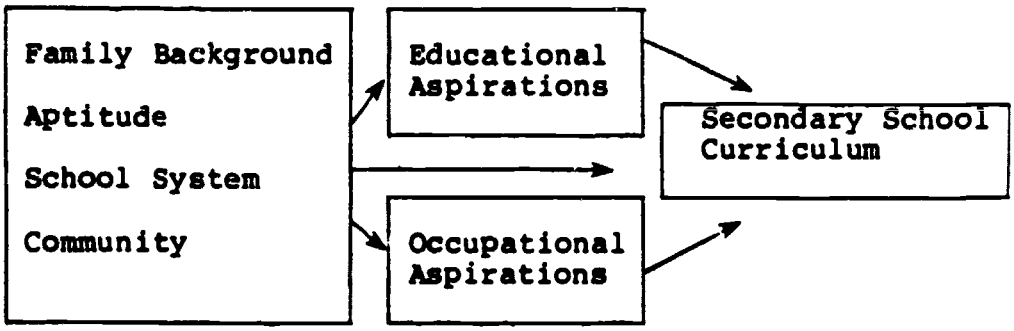
Secondary School Curriculum by Sex and Race: Young Men (1966) and Young Women (1968) Not Enrolled Who Had Completed 10-15 Years of School (Number of thousands)

Curriculum Enrollement by Sex	White	Black
Young Men (N)	3,962	596
Vocational (percent)	18[a]	18
Commercial	5	4
Other vocational	13	14
General	60	70
Academic	22	12
Young Women (N)	6,340	87
Vocational (percent)	34	24
Business and Office	32	19
Other vocational	2	5
General	38	61
Academic	25	16

Source: Developed from National Longitudinal Survey data presented in Grasso and Shea, Table 2.1, p. 10.

a. Totals may not sum to 100 due to rounding.

differ somewhat, the Grasso-Shea and Hofferth studies view the curriculum decision as a function of characteristics describing the respondent's family background, aptitude, school system, and community.[5] The effect of these characteristics on curriculum choices is perceived as both direct and indirect through their influence upon the respondent's aspirations. A composite model drawn from the two studies is expressed in block-recursive form as follows:



Within this framework, attention is focused on the roles of home, community, and schools in shaping curriculm choices. Understanding these roles is necessary for any public effort to change the sex stereotypic nature of secondary school curriculum participation. The involvement of secondary schools in the curriculm choice is a major question addressed by these two studies. Secondary schools have long been criticized for their role in shaping these choices. Are these schools in fact an active force influencing curriculum choices, or alternatively, are they a passive force ratifying choices determined by the home and community? In examining the effect of these institutions simultaneously, the Grasso-Shea and Hofferth studies provide some interesting insights.

The evidence offered suggests that the sex stereotypic nature of curriculum participation in secondary schools is heavily influenced by the forces within the home and the community outside the school system. Longitudinal data show that the curriculum decisions of young men and young women are made early in secondary school with few changes

5. Ibid., pp. 12-27, and Hofferth, pp. 46-55.

thereafter.[6] These decisions are strongly correlated with the each sex's stereotypic occupational aspirations.[7] Forces involving parental role models within the home, and reflecting the opportunity structure of the labor market in the community, appear to be important in shaping these aspirations.[8] There is little evidence to support the direct effect of secondary schools curriculum choices.[9] Among blacks and whites of each sex, forces outside secondary schools related to socioeconomic status and aptitudes play a major role explaining the racial differences in curriculum choice.[10]

This interpretation, however, has several important caveats, including the absence of a well-developed theory of curriculum choice. The models examined in these studies are by their eclectic natures uncertain tests of the underlying structural relationships influencing the curriculum choices of young men of young women. There is no theory indicating which elements of the secondary school system influence curriculum choices or how these elements interact with outside forces. The specification of any curriculum choice model, therefore, is uncertain and the conclusions should be qualified accordingly. A second related caveat involves the role of early schooling in the shaping of aspirations and curriculum choices. Measures of the early schooling experiences of young men and young women are not included in any of the models examined. The influence these experiences may have in conditioning the curriculum choices of each sex should be weighed along with the importance of forces within the home and the community.

These caveats recommend: (1) a cautious approach to the findings and (2) further theoretical development in studies of curriculum choice. The evidence indicates that further development needs to be interdisciplinary with emphasis on its sociological and psychological content.

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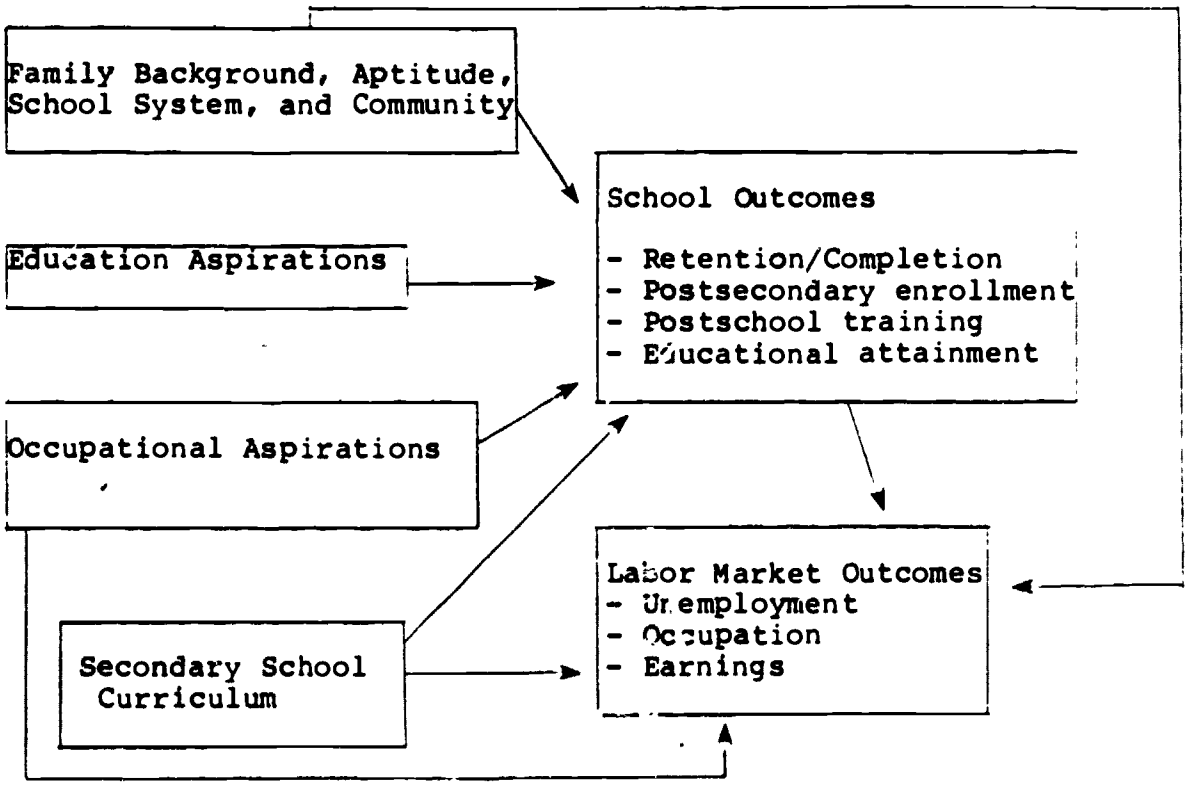
6. Grasso and Shea, pp. 32-55, and Hofferth, p. 62.
7. Grasso and Shea, pp. 20-21, and Hofferth, p. 50.
8. Grasso and Shea, pp. 56-62, and Hofferth, p. 46.
9. Hofferth, pp. 50-55.
10. Grasso and Shea, p. 13.

Notions about sex roles and career paths which fulfill these rules appear to be formed early in the life cycle before entry into the secondary school system. To view secondary schools as an active sorting mechanism distributing youth among the various curricula in a socially pejorative manner is overly simplistic. The sorting process and the definition of roles reflected in the occupational and educational aspirations of young men and young women appear to begin much earlier and to dictate a more passive role for secondary schools in the reinforcement of these patterns. Theory should address how these roles are defined and the limits on the use of secondary schools to offset the conditioning effect of the broader set of social institutions.

Outcomes of Curriculum Choices

As described, the curriculum choices of young men and young women are unequivocally sex stereotypic in nature. The three studies examine the schooling and labor market outcomes of these choices over time. The measures vary among the studies, with the Grasso-Shea study covering the most comprehensive list. Curriculum choices are perceived as influencing labor market measures both directly and indirectly through their impact on schooling measures. The antecedents of these choices are also viewed as directly influencing schooling and labor market measures. A composite model from the three studies expresses these relationships in block-recursive form below:



Again, attention is focused on the roles of home, community, and schools to determine schooling and labor market outcomes. Two issues are addressed concerning the effect of curriculum choice on these outcomes. The first issue involves the relation of outcomes variation to enrollment in a vocational versus a general or academic curriculum. The issue is whether or not a vocational education actually develops marketable skills and responds to the difference in needs, interests, and abilities of each sex. The second issue involves the variation in outcomes for young women related to enrollment in a female stereotypic versus a nonfemale stereotypic vocational curriculum. This issue concerns the sex stereotypic nature of vocational education in secondary schools and its influence on the economic status of women.

The three studies are generally quite pessimistic about the role of vocational education in developing marketable skills and responding to differences in needs, interests, and abilities. For young men and young women, enrollment in a vocational curriculum is found to be inversely related to participation in postsecondary education and postschool training leading to a lower than average overall educational attainment.[11] Vocational education, moreover, appears to have little effect on labor market outcomes, except perhaps for young women. Young women in a vocational curriculum, generally business and office education, are found to have higher retention and completion rates in secondary schools than similar young women in a general curriculum and lower unemployment and higher earnings in their subsequent labor market activity.[12]

These conclusions are doubtless disappointing to vocational education proponents. While they fail to support the importance of vocational education, it can be argued that the three studies do not conclusively discount its value. Some of these arguments are developed in the Grasso-Shea study which cites the problems involved in using averages to describe all programs in all States and problems related to the vintage of data used in the analysis.[13] Another methodological problem concerns the selectivity bias involved in comparing one

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11. Grasso and Shea, pp. 45-56, and Wiley and Harnischfeger, pp. 79-81, 87-95.

12. Grasso and Shea, pp. 91-96.

13. Ibid., pp. 162-163.

curriculum group with another. From the earlier analysis of curriculum choices, it is quite clear that these choices are not randomly determined. Even with efforts to control for the antecedents of curriculum choice, in all probability there remains some selection bias to affect comparisons of outcomes. The nature of this bias would favor those in academic and general curricula over those in a vocational curriculum. The pessimism of these studies, therefore, should be carefully qualified.

The evidence regarding the sex stereotypic nature of vocational education in secondary schools and its impact on women's economic status is particularly interesting. There is no direct evidence available in the three studies concerning this issue, since the small number of young women in non-female stereotypic vocational programs limits any meaningful comparison of their schooling and labor market experiences with those of young women in female stereotypic vocational programs. Some indirect evidence is available, however, suggesting the potential for substantial economic gains for young women who move into non-female stereotypic vocational programs.

This evidence is based on a comparison of the subsequent earnings of young men and young women who were formerly vocational curriculum students. The young men, virtually all of whom were clustered in non-female stereotypic vocational programs, earned substantially higher amounts than the young women, most of whom were concentrated in female stereotypic vocational programs.[14] If the experience of these young men is subsequently shared by young women as they move into non-female stereotypic vocational programs, young women should realize significant economic gains. The likelihood of this occuring, however, will depend on employment opportunities for young women comparable to those for young men.

Lessons for Public Policy

Interest in vocational education's impact on the schooling and labor market experiences of young men and young women will increase with debate on reauthorization of Federal vocational education legislation in 1981. The measurement of this impact by the three studies offers some important lessons for public policy concerned with vocational education in secondary schools. Support for vocational education largely derives

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14. Wiley and Harnischfeger, p. 110.

from the assumption of its role in developing marketable skills and responding to differences in needs, interests, and abilities. The picture emerging from these studies, though carefully qualified, suggests that vocational education shares no special advantage in this regard, except perhaps for young women. The advantage for them, moreover, is limited to comparisons with other young women enrolled in a general curriculum.

Though disappointing, these findings do not necessarily argue for less vocational education. Other factors described in the Grasso-Shea study should first be considered: (1) congruence with an individual's career objectives, (2) differences in learning styles, (3) non-vocational purposes, (4) psychological satisfaction, (5) influence on eventual educational attainments, (6) short and longer term economic benefits to the individual, (7) social efficiency at the work place, (8) ability to fulfill the aspirations of persons with special needs, and (9) cost effectiveness.[15] The findings argue for a more realistic assessment of vocational education and its capacity for overcoming the special problems of youth in the transition from school to work. Though vocational education may serve the needs, interests, and abilities of some, it offers no simple solution for all.

Findings concerning the sex stereotypic nature of vocational education in secondary schools and its impact on the economic status of women offer strong support for reducing the concentration of young women in female stereotypic vocational programs. This concentration, largely in business and office education, helps reinforce occupational sex stereotyping in the labor market and depresses the earnings of young women in relation to young men, particularly among whites. Efforts to move young women into nonfemale stereotypic vocational programs accompanied by efforts to ensure employment opportunities similar to those for young men promise substantial economic gains for these young women. This finding focuses attention on the forces influencing the curriculum choices of each sex.

The evidence in these studies points to the influence of the home and community, although some secondary schools doubtless determine the curriculum choices of young men and young women. By the time young men and young women approach secondary school and the curriculum decision, their aspirations and expectations are already well formed. This takes place within the home through parental role models and within the community through the labor market as it defines the opportunity structure. Secondary schools

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15. Grasso and Shea, pp. 157-158.

appear merely to reinforce the roles for young men and young women created by this broader set of social forces. Efforts to move young women into non-female stereotypic vocational programs within secondary schools must consider these forces and their influence upon curriculum choices.

Secondary schools can play an important role in offsetting the sex stereotypic nature of these forces. Without efforts to deal with the root causes of the problem represented by these forces, however, the capacity of secondary schools to promote social change will be limited. This should be acknowledged in any effort to revamp the curriculum choices of young women. To do otherwise is to risk overpromising accompanied by a loss of credibility for secondary schools and their programs. Many problems currently faced by schools can be traced to a willingness to overload them with responsibility for social change when the causes are outside the schools.

The steps schools can take to encourage enrollment of young women in nonfemale stereotypic vocational programs include: (1) providing them with better information about the world of work and (2) assuring them full access to vocational education programs. The evidence in these studies supports career education and other programs to provide better information about work. Formal information about career opportunities should be available within schools in addition to that available informally within the home and community. These programs should begin during the early school years when aspirations and expectations are being formed.

Counseling in secondary schools should provide support for young women entering non-female stereotypic vocational programs together with links to job placement services. Sex equity programs, furthermore, should be continued as an institutional mechanism within the schools to promote change and ensure young women full access to vocational education. These steps within schools should contribute to the movement of young women into non-female stereotypic vocational programs. The pace of this movement, however, as implied by the review of these studies, will largely be determined by social forces outside the schools in the home and community.

THE AMERICAN INSTITUTES FOR RESEARCH STUDY OF SEX EQUITY IN VOCATIONAL EDUCATION: EFFORTS OF STATES AND LOCAL EDUCATION AGENCIES

by

Laurie R. Harrison

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THE AMERICAN INSTITUTES FOR RESEARCH STUDY OF SEX EQUITY IN VOCATIONAL EDUCATION: EFFORTS OF STATES AND LOCAL EDUCATION AGENCIES

Introduction

The latest statistics continue to show tremendous disparity between the incomes of women and men. Data collected by the Department of Commerce's Bureau of the Census, which compare the median earnings of full-time, year-round male and female workers, show that women's median earnings as a percent of men's were 63.9 percent in 1955, and have dropped steadily, with only slight fluctuations, to 59.4 percent in 1978. While there has been some documentation of unequal pay between men and women for equal work, the primary reason for this discrepancy rests in the types of jobs which women are trained for and pursue.

Women are heavily concentrated in lower paying, traditionally female jobs, such as secretary and waiter/waitress, each of which is over 90 percent female. At the same time, women continued to make up a very small proportion of workers in the trades--plumbing, auto mechanics, and carpentry were all more than 99 percent male in 1977. Most jobs are still strongly dominated by one sex or the other, and there are very few in which the proportion of women approximates their representation in the labor force as a whole.

The primary role of vocational education has been to prepare people for occupations requiring less than a baccalaureate degree, through training programs and cooperative arrangements with business and industry. Thus vocational education is closely associated with occupational choices and opportunities. Such choices are among the most critical that a person ever makes; they help to determine income, status, and life satisfaction. While it is not clear how much responsibilty vocational education alone bears for the inequities which currently exist in the employment and earnings patterns in the United States, it is clear that men and women do not make vocational choices unencumbered by sex. The enrollment patterns in vocational programs are heavily influenced by sex, as are the staffing patterns. Furthermore, in the majority of cases, women emerge from vocational education programs with the virtual assurance of earning lower incomes while working in lower prestige jobs. In addition, while the number of nontraditional students has increased in a few areas in recent years, in general there has been little movement toward a more balanced pattern of enrollments in areas traditionally dominated by either men or women.

Although changes in civil rights laws in 1964 and title IX of the Educational Amendments of 1972 made sex and race discrimination illegal, inequities remained. Thus while these antidiscrimination measures were necessary, they were not sufficient to eliminate institutionalized stereotyping and discrimination. Educators, advocates, and congressional members recognized that these measures needed to be supplemented with actions which would carry out the intent of the law. In enacting the Education Amendments of 1976 (Public Law 94-482), Congress provided for such steps in vocational education. The declaration of purpose authorizes Federal grants to states to assist them to "develop and carry out such programs of vocational education within each State so as to overcome sex discrimination and sex stereotyping in vocational education programs (including programs of homemaking), and thereby furnish equal educational opportunities in vocational education to persons of both sexes."

There are active mandates throughout the legislation to address inequities through staff development, curriculum development, research and demonstration projects, and guidance and counseling. Section 104(b) (1) of the Act requires States to assign specific activities to full-time personnel aimed at reducing sex stereotyping and assuring that the women's needs and interests are addressed in projects assisted under the Act. Thus, this legislation requires a concerted effort to identify and eliminate sex inequities in vocational education.

How have the States and local education agencies responded to this change? In the spring of 1978 the American Institutes for Research conducted a study of the extent of sex discrimination and stereotyping in vocational education and the efforts which were being made to respond to the legislation. Visits were made to departments of education in 49 States plus the District of Columbia. Structured interviews were conducted with each State's director of vocational education, each State sex equity coordinator, and with staff responsible for occupational program areas, counseling, vocational advisory councils, professional development, and evaluation.

In addition, a stratified random sample of 100 schools was selected and visited. Sampling variables included geographical region, size of city population, and type of vocational school (comprehensive high school, vocational high school, vocational center, technical institute, and junior/community college). For each school in the sample, visits were also made to the district office and interviews were conducted with the district director of vocational education and the director of guidance and counseling. Thus, the data collected in the AIR study relate to the question of whether States and local education agencies are responding to the call for equity measures set forth in the 1976 legislation.

It should be borne in mind that the field work for the study was conducted during the spring of 1978. Under title IX of the Education Amendments of 1972, States and schools have been attempting to reduce or eliminate sex inequities in vocational education. However, the regulations for the 1976 Education Amendments which contains specific requirements for overcoming sex inequities, were not published until October 1, 1977. Thus the data that follow reflect efforts which have resulted from title IX and some of the early efforts to implement the new Act.

State Education Agency Efforts

Staffing

Each State is required to assign full-time personnel to combat stereotyping and discrimination in vocational education. These individuals, who are given the title of "Sex Equity Coordinator," are perhaps most responsible for the States' equity efforts, but they do not work in a vacuum nor can the task of fostering equity be left to them alone. For the most part, sex equity coordinators are female and they operate in a white male domain. Table 1 shows the sex and race of State level staff at the time of the AIR study. This table shows that the only positions where females dominate are: "Sex Equity Coordinators," "Directors of Health Occupations," and "Directors of Home Economics." All other staff positions are filled primarily by males, including the directors of business and office occupations, which is a traditionally female training area.

The State Advisory Councils for Vocational Education can also play a role in the States' equity efforts. At the time of the AIR data collection, 94 percent of the executive directors of these councils and 69 percent of the members were male. Seventy-two percent of the directors reported that equity had been a topic on the councils' meeting agenda and 40 percent of the councils appeared to be taking an active role in terms of evaluating their States' equity efforts.

The Role and Responsibility of the Sex Equity Coordinator

The following points summarize the major roles and responsibilities of the sex equity coordinators at the time of the AIR data collection. Caution should be used in drawing conclusions on the effectiveness of the sex equity coordinators from these findings. Since half of the coordinators had been on the job for such a short time it was really too early to assess their effectiveness.

- At the time of data collection, 47 States had appointed permanent sex equity coordinators. Two of these coordinators had other duties in addition to

Table 1

SEX AND RACE OF STATE LEVEL STAFF

Position	Total by Sex				Total by Race								Total by Sex and Race															
	Men		Women		White		Black		Hispanic		Asian/ Pac. Is.		White Men		Black Men		Hispanic Men		Asian/ Pacific Is. Men		White Women		Black Women		Hispanic Women		Asian/ Pacific Is. Women	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
State Director																												
Total	49	98.0	1	2.0	46	92.0	3	6.0	0	0.0	1	2.0	45	90.0	3	6.0	0	0.0	1	2.0	1	2.0	0	0.0	0	0.0	0	0.0
N. East	9	100.0	0	0.0	9	100.0	0	0.0	0	0.0	0	0.0	9	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
N. Central	13	100.0	0	0.0	11	84.7	1	8.3	0	0.0	0	0.0	11	84.7	1	8.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
South	17	100.0	0	0.0	16	94.1	1	5.9	0	0.0	0	0.0	16	94.1	1	5.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
West	11	100.0	1	8.3	10	91.3	1	8.3	0	0.0	1	8.3	9	77.8	1	8.3	0	0.0	1	8.3	1	8.3	0	0.0	0	0.0	0	0.0
Sex Equity Coor.																												
Total	1	2.0	40	98.0	40	80.0	10	20.0	0	0.0	0	0.0	1	2.0	0	0.0	0	0.0	0	0.0	30	76.0	10	20.0	0	0.0	0	0.0
N. East	0	0.0	9	100.0	8	88.9	1	11.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	8	88.9	1	11.1	0	0.0	0	0.0
N. Central	0	0.0	12	100.0	9	75.0	3	25.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	9	75.0	3	25.0	0	0.0	0	0.0
South	1	5.9	16	94.1	12	70.6	5	29.4	0	0.0	0	0.0	1	5.9	0	0.0	0	0.0	0	0.0	11	64.7	5	29.4	0	0.0	0	0.0
West	0	0.0	11	100.0	11	91.7	1	8.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	11	91.7	1	8.3	0	0.0	0	0.0
Asso. Director of the State Advisory Council																												
Total	47	94.0	3	6.0	46	92.0	1	2.0	0	0.0	1	2.0	44	92.0	0	0.0	0	0.0	1	2.0	1	4.0	1	2.0	0	0.0	0	0.0
N. East	9	100.0	0	0.0	9	100.0	0	0.0	0	0.0	0	0.0	9	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
N. Central	13	100.0	0	0.0	13	100.0	0	0.0	0	0.0	0	0.0	13	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
South	16	94.1	1	5.9	16	94.1	1	5.9	0	0.0	0	0.0	16	94.1	0	0.0	0	0.0	0	0.0	0	0.0	1	5.9	0	0.0	0	0.0
West	10	83.3	2	16.7	11	91.7	0	0.0	0	0.0	1	8.3	9	75.0	0	0.0	0	0.0	1	8.3	2	16.7	0	0.0	0	0.0	0	0.0
State Dir. of Prof. Development																												
Total	38	86.4	6	13.6	40	90.9	3	6.8	2	4.5	1	2.3	35	79.5	0	0.0	2	4.5	1	2.3	5	11.4	1	2.3	0	0.0	0	0.0
N. East	9	100.0	0	0.0	9	100.0	0	0.0	0	0.0	0	0.0	9	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
N. Central	10	90.9	1	9.1	11	100.0	0	0.0	0	0.0	0	0.0	10	90.9	0	0.0	0	0.0	0	0.0	1	9.1	0	0.0	0	0.0	0	0.0
South	13	86.7	2	13.3	14	93.3	1	6.7	0	0.0	0	0.0	11	86.7	0	0.0	0	0.0	0	0.0	2	13.3	1	6.7	0	0.0	0	0.0
West	6	80.0	2	20.0	7	70.0	0	0.0	2	20.0	1	10.0	5	70.0	0	0.0	2	20.0	1	10.0	2	20.0	0	0.0	0	0.0	0	0.0
Dir. of Research, Management & Eval.																												
Total	43	88.8	6	11.0	47	91.1	2	3.9	0	0.0	1	2.0	41	84.3	2	3.9	0	0.0	0	0.0	4	7.8	1	2.0	0	0.0	1	2.0
N. East	8	88.9	1	11.1	8	88.9	1	11.1	0	0.0	0	0.0	7	77.7	1	11.1	0	0.0	0	0.0	1	11.1	0	0.0	0	0.0	0	0.0
N. Central	11	91.7	1	8.3	11	100.0	0	0.0	0	0.0	0	0.0	11	91.7	0	0.0	0	0.0	0	0.0	1	8.3	0	0.0	0	0.0	0	0.0
South	21	87.5	3	12.5	17	94.4	1	5.6	0	0.0	0	0.0	18	83.3	0	0.0	0	0.0	0	0.0	3	16.1	1	5.6	0	0.0	0	0.0
West	11	91.6	1	8.3	10	83.3	1	8.3	0	0.0	1	8.3	10	83.3	1	8.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	8.3
Dir. of Guidance & Counseling																												
Total	35	77.8	10	22.2	30	66.6	5	11.1	0	0.0	1	2.2	33	73.3	1	2.2	0	0.0	1	2.2	6	13.3	4	8.9	0	0.0	0	0.0
N. East	4	80.0	1	20.0	7	87.5	1	12.5	0	0.0	0	0.0	4	50.0	0	0.0	0	0.0	0	0.0	3	37.5	1	12.5	0	0.0	0	0.0
N. Central	8	88.9	1	11.1	9	100.0	0	0.0	0	0.0	0	0.0	8	88.9	0	0.0	0	0.0	0	0.0	1	11.1	0	0.0	0	0.0	0	0.0
South	14	82.4	3	17.6	13	76.5	4	23.5	0	0.0	0	0.0	13	76.5	1	5.9	0	0.0	0	0.0	0	0.0	3	17.6	0	0.0	0	0.0
West	9	81.8	2	18.2	10	90.9	0	0.0	0	0.0	1	9.1	8	72.7	0	0.0	0	0.0	1	9.1	2	18.2	0	0.0	0	0.0	0	0.0

Table 1-continued

Position	Total by Sex: Men N	Men %	Women N	Women %	Total by Race: White N	White %	Black N	Black %	Hispanic N	Hispanic %	Asian/ Pac. Is. N	Asian/ Pac. Is. %	White Men N	White Men %	Black Men N	Black Men %	Hispanic Men N	Hispanic Men %	Asian/ Pacific Is. Men N	Asian/ Pacific Is. Men %	White Women N	White Women %	Black Women N	Black Women %	Hispanic Women N	Hispanic Women %	Asian/ Pacific Is. Women N	Asian/ Pacific Is. Women %
Traditionally White Occupational Areas																												
Dir. of Agricultural Occupations																												
Total	22	100.0	0	0.0	20	90.9	1	4.5	0	0	1	4.5	20	90.9	1	4.5	0	0.0	1	4.5	0	0.0	0	0.0	0	0.0	0	0.0
N. East	1	100.0	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
N. Central	7	100.0	0	0.0	7	100.0	0	0.0	0	0.0	0	0.0	7	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
South	9	100.0	0	0.0	8	88.9	1	11.1	0	0.0	0	0.0	8	88.9	1	11.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
West	4	100.0	0	0.0	3	75.0	0	0.0	0	0.0	1	25.0	3	75.0	0	0.0	0	0.0	1	25.0	0	0.0	0	0.0	0	0.0	0	0.0
Director of Trade & Industrial Occupations																												
Total	30	100.0	0	0.0	28	93.3	0	0.0	1	3.3	1	3.3	28	93.3	0	0.0	1	3.3	1	3.3	0	0.0	0	0.0	0	0.0	0	0.0
N. East	3	100.0	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
N. Central	7	100.0	0	0.0	7	100.0	0	0.0	0	0.0	0	0.0	7	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
South	8	100.0	0	0.0	8	100.0	0	0.0	0	0.0	0	0.0	8	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
West	10	100.0	0	0.0	8	80.0	0	0.0	1	10.0	1	10.0	8	80.0	0	0.0	1	10.0	1	10.0	0	0.0	0	0.0	0	0.0	0	0.0
Director of Technical Occupations																												
Total	9	100.0	0	0.0	9	100.0	0	0.0	0	0.0	0	0.0	9	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
N. East	1	100.0	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
N. Central	2	100.0	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
South	4	100.0	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
West	2	100.0	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Traditionally Mixed Occupational Areas																												
Dir. of Marketing & Distribution Occup.																												
Total	17	94.4	1	5.6	17	94.5	0	0.0	0	0.0	1	5.6	16	88.9	0	0.0	0	0.0	1	5.6	1	5.6	0	0.0	0	0.0	0	0.0
N. East	3	100.0	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
N. Central	5	100.0	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
South	4	80.0	1	20.0	5	100.0	0	0.0	0	0.0	0	0.0	4	80.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
West	5	100.0	0	0.0	4	80.0	0	0.0	0	0.0	1	20.0	4	80.0	0	0.0	0	0.0	1	20.0	0	0.0	0	0.0	0	0.0	0	0.0
Traditionally Female Occupational Areas																												
Dir. of Business & Office Occupations																												
Total	19	76.0	6	24.0	22	88.0	2	8.0	1	4.0	0	0.0	18	72.0	0	0.0	1	4.0	0	0.0	4	16.0	2	8.0	0	0.0	0	0.0
N. East	5	83.3	1	16.7	6	100.0	0	0.0	0	0.0	0	0.0	5	83.3	0	0.0	0	0.0	0	0.0	1	16.7	0	0.0	0	0.0	0	0.0
N. Central	3	75.0	1	25.0	4	100.0	0	0.0	0	0.0	0	0.0	3	75.0	0	0.0	0	0.0	0	0.0	1	25.0	0	0.0	0	0.0	0	0.0
South	7	70.0	3	30.0	8	80.0	2	20.0	0	0.0	0	0.0	7	70.0	0	0.0	0	0.0	0	0.0	1	10.0	2	20.0	0	0.0	0	0.0
West	4	80.0	1	20.0	4	80.0	0	0.0	1	20.0	0	0.0	4	80.0	0	0.0	1	20.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Dir. of Health Occup.																												
Total	3	15.8	16	84.2	18	94.7	1	5.3	0	0.0	0	0.0	3	15.8	0	0.0	0	0.0	0	0.0	15	78.9	1	5.3	0	0.0	0	0.0
N. East	0	0.0	6	100.0	6	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	100.0	0	0.0	0	0.0	0	0.0
N. Central	2	50.0	2	50.0	4	100.0	0	0.0	0	0.0	0	0.0	1	50.0	0	0.0	0	0.0	0	0.0	2	50.0	0	0.0	0	0.0	0	0.0
South	1	14.3	6	85.7	6	85.7	1	14.3	0	0.0	0	0.0	1	14.2	0	0.0	0	0.0	0	0.0	5	71.4	1	14.3	0	0.0	0	0.0
West	0	0.0	2	100.0	2	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
Dir. of Home Economics																												
Total	0	0.0	24	100.0	20	83.3	2	12.5	0	0.0	1	4.2	0	0.0	0	0.0	0	0.0	0	0.0	20	83.3	2	12.5	0	0.0	1	4.1
N. East	0	0.0	4	100.0	3	75.0	1	25.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	75.0	1	25.0	0	0.0	0	0.0
N. Central	0	0.0	3	100.0	5	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
South	0	0.0	8	100.0	6	75.0	2	25.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	75.0	1	25.0	0	0.0	0	0.0
West	0	0.0	7	100.0	6	85.7	0	0.0	0	0.0	1	14.3	0	0.0	0	0.0	0	0.0	0	0.0	6	85.7	0	0.0	0	0.0	1	14.3

implementing sex equity activities. Three States had appointed acting coordinators while searching for a qualified candidate. However, 11 coordinators had held the job for less than 4 months; and an additional 14 coordinators had been on the job less than 7 months. Therefore half the coordinators were very new to the job.

- The major selection criteria for the equity coordinator cited by the State directors were: (1) experience in some aspect of vocational education, (2) administrative experience, and (3) the ability to work well with others. Only seven State directors stated they sought a candidate with a strong commitment to sex equity.

- When sex equity coordinators were asked what experience in the areas of sex equity and vocational education they brought to the job, 12 cited no equity experience and nine no vocational education experience.

- Eighteen coordinators reported directly to the State director of vocational education; six reported to the assistant director. Sixteen were located further down in the vocational education administrative structure, and 10 appeared to be located outside the vocational education division.

- Of the activities specified in the legislation, coordinators reported they spent approximately 25 percent of their time on creating awareness of programs and activities designed to reduce inequities. This was the highest percentage of time reported on any of the specified activities. The coordinators also felt this was the most useful activity for achieving sex equity in their States.

- Thirty-seven States had given the coordinator a budget to administer.

- Twenty percent of the coordinators reported they had experienced no inhibiting factors on the job. The greatest inhibiting factors cited by coordinators who report to the State directors were: too much to do (22.2 percent), traditional and conservative attitudes of others (16.7 percent), and delays in beginning the job (16.7 percent). The greatest inhibiting factors cited by coordinators who report to someone other than the State director were: too much to do, lack of cooperation from staff, general bureaucracy, and lack of power and support (all at 12.5 percent).

- Eighty-five percent of State personnel (excluding the State director) could describe functions of the sex equity coordinator. Fifteen percent were unable to think of any function of the coordinator, or stated that the coordinator was "getting in their way."

Budgeting for Equity at the State Level

States are required to reserve $50,000 for the employment of full-time personnel to carry out equity efforts. Forty-one States were spending part of the $50,000 on items in addition to salaries. The items most frequently funded were travel, supplies and equipment, and conference expenses. Twenty States had demonstrated a commitment to equity by adding State funds to the $50,000 set aside. Equity coordinators reported that the additional State funds were used for special project funding (including services to displaced homemakers), workshops, materials, and consultants.

State Activities to Address Inequities

In order to examine the level of State activity designed to respond to the legislation and address inequities, Table 2 is provided. This table reveals that:

- The activities that States were undertaking primarily involved review and analysis of programs, policies, and procedures. Approximately two-thirds of the States were implementing such activities.

- Only 32 percent of the States were taking action to correct problems uncovered.

- Sixty-four percent of the State directors reported they were currently implementing activities to assist local education agencies, but assistance to "others" (in this case, teacher training institutions, employers, and community organizations) was only being implemented by 46, 22 and 34 percent of States, respectively.

According to sex equity coordinators, the following percentage of States are initiating the more action-oriented activities listed below. In all cases, fewer than 50 percent were implementing these at the time of data collection.

	Percent
Review of local curriculum materials for sex bias	48
Sponsorship of programs to make students aware of inequities	38

Table 2

Percent of States Implementing Specific Provisions of the Legislation: Responses of State Directors

(Percent)

	Imple-menting	Intend to implement: not begun	No plans/ Don't Know
Gather, analyze, disseminate data on students and employees	66	28	6
Develop and support action to correct problems discovered above	32	56	12
Gather and Disseminate information to create awareness of activities to reduce inequities	92	0	8
Review distribution of grants to assure women's needs are addressed	80	14	6
Review all the State's vocational education programs for sex bias	62	36	2
Monitor the implementation of law prohibiting discrimination in hiring, firing, promotion	64	14	22
Review and provide recommendations for annual plan regarding overcoming sex inequities	50	42	8
Assist LEAs[a] and others to improve opportunities for women:			
LEAs and community colleges	64	28	8
Teacher training institutions	46	26	28
Employers	22	32	46
Community organizations	34	36	30

a. Local Education Agencies

Table 3

Local Education Agency Actions to Eliminate Inequities:

Responses of Local Directors

Activity	Percent Implementing
Gather, analyze, disseminate data on students and employees	50.0
Gather and disseminate information to create awareness of program to reduce inequities	33.5
Monitor the implementation of laws prohibiting discrimination in staff hiring, firing, promoting	68.6
Review funding practices to assure guidelines regarding sex equity are carried out	63.5
Sponsor research and evaluation activities related to sex equity	26.6
Sponsor programs to make students aware of inequities	29.4
Sponsor programs to make students aware of or encourage them to enter nontraditional programs	37.5
Sponsor special job development, placement, or followup for nontraditional students	24.2
Make special guidance and counseling available to nontraditional students	26.6
Make day-care services available to children of vocational students	23.8
Sponsor programs for employers or community organizations to alert them to the problems of inequity	20.8

	Percent
Sponsorship of programs to make students aware of or encourage them to enter nontraditional programs	42
Sponsorship of special job development, placement, or followup for nontraditional students	36
Recruitment of females for State level jobs usually held by males	34
Recruitment of males for State level jobs usually held by females	26
Provision of incentives to schools to hire females in traditionally male fields	2
Provision of incentives to schools to hire males in traditionally female fields	0

Thus, in general, at the State level there is a much greater effort in reviewing and monitoring than in action to overcome inequities. State level efforts are more strongly focused within the vocational education community then on its interface with other agencies, specifically in working with teacher training institutions, employers and the community to foster greater equity. While the essence of the 1976 legislation requires that programs actively be supported to overcome inequities, in the spring of 1978 the majority of States had yet to respond to this charge.

Local Education Agency Efforts

Local Level Activity Designed to Address Inequities

A pattern similar to that of the State level emerges when activity at local education agencies (LEAs) is examined. That is, local directors reported the greatest activity to be review and monitoring of activities rather than student- or community-oriented activities. (The pattern of staffing at the local education agency level also parallels that of the State level. Over 90 percent of the local directors of vocational education are men, as are over 70 percent of the local directors of guidance and counseling.) Table 3 shows the percent of local directors who report their districts are implementing each of the listed activities. The table shows that approximately two-thirds were involved in some review and monitoring activities, but in general no more than one-third were sponsoring or conducting more action-oriented activities aimed at fostering greater sex equity.

In addition to the activities listed in Table 3, local directors were asked if their districts were engaged in special activities to meet the needs of women or minority students.

Sixty percent of the local directors in[illegible]ed at least one type of activity existed to meet the needs o[illegible]lder women returning to school. The percent implementing specific activities of this nature are presented below:

Activity to Meet the Needs of Older Women	Percent of LEAs Implementing
Provide special reentry programs	36.5
Provide remedial programs for women lacking background to enter traditionally male fields	26.1
Provide evening classes for women who work during the day	43.8
Provide special counseling for reentry women	27.1
Provide financial assistance for reentry women	22.9

Approximately 59 percent of local directors indicated their agency sponsored at least one activity to meet the needs of minority students. The percents implementing the following activities are:

Activity to Meet the Needs of Minority Students	Percent of LEAs [illegible]plementing
Special counselor training and/or counseling approaches	14.6
Cultural awareness programs for staff	34.4
Native language examinations	15.6
Special programs to place minority women	9.4
Provision of English-as-a-Second-Language and other linguistic support services	33.3
Special programs to attract minority women	17.7
Special career awareness activities for minority group members	22.9

As stated in the introduction, States and local districts have been operating under the influence of title IX legislation since 1972. At the time of data collection for the AIR study the regulations for implementing the 1976 Education Amendments had been published for approximately 8 months, although the legislation had been passed a year earlier. Because of the greater length of time local agencies had to respond to title

IX, questions related to its implementation were included in the data collection effort. All directors were asked if their agencies had conducted self-evaluations in response to title IX which included vocational education. Eighty-one percent indicated they had done so, or were planning to, while 19 percent stated such evaluations had not been conducted or they were unaware of them if they had been done. More specific information is presented below:

Title IX Activity	Percent of LEAs Implementing
Review local vocational education programs for sex inequities	71
Review locally used curriculum materials	55
Review recruitment policies, practices, and materials	72
Review admission policies, practices, and materials	63

These data indicate that relatively more districts have implemented title IX reviews than activities related to addressing inequities as specified in the 1976 vocational education legislation. However, even these figures are lower than some might expect.

Recommendations

Based on the preceding sections and other major findings of the AIR Vocational Education Equity Study, the following recommendations seem appropriate.

1. There needs to be considerably more emphasis at all levels on activities designed to overcome inequities in addition to monitoring and reviewing designed to discover such inequities.

A major theme throughout the legislation is that an active effort to overcome inequities must be made. However, the primary form of activity observed in this study was review and monitor--activities quite passive in nature. At best, what can presently be observed is an emerging equity effort. Corrective action to overcome inequities discovered through review and monitoring is lacking. States, local education agencies, and schools need incentives to act, and examples of successful approaches. Data from the AIR study revealed that schools with active efforts to address inequities had a higher proportion of nontraditional students. Thus, it appears that efforts to make students aware of all options and to encourage nontraditional choices will result in changes in enrollment patterns. In the spring of 1978, fewer than 30 percent of the schools surveyed were engaged in

these kinds of activities, and data presented here have shown that this is not the major focus of State/and local efforts. Although this leaves a lot of room for improvement, it does appear that such improvement is possible. Concerted efforts, particularly those which directly involve students, are of vital importance in making progress in reducing inequities.

Specific examples of active efforts which are required to take corrective action and develop truly open systems are:

- Special programs should be developed to acquaint students with, and encourage them to consider, nontraditional career options. The objective is not to coerce and push people into undesired roles, but to broaden the range of occupational choices for all individuals.

- Affirmative action programs for administrative, instructional, and support staff should be initiated to overcome the effects of past discrimination. Furthermore, there must be equality between men and women holding like positions in terms of salaries, responsibilities, and opportunities for advancement.

- Liaison should be established with teacher training institutions to encourage the training of nontraditional staff.

- Staff with responsibility for identifying and eliminating discriminatory practices must have real power within the system rather than relatively minor positions meeting the requirements in the law in a purely pro forma manner.

- Vocational educators should work with employers and community groups to foster greater sex equity. This was a key recommendation of virtually every successful program identified in this study.

The last two points provide evidence that concerted efforts are being made to "troubleshoot" areas over which vocational educators have no official control, as opposed to using failings in these areas as a ready source of excuses. Furthermore, if resources beyond the minimum amounts required by law are committed, there is evidence that an active commitment to the equity effort is present.

2. The preceding recommendation is not meant to imply that review and monitoring are useless activities. Rather, the focus of such activities should be on measuring progress in addition to ensuring compliance with the law.

Reviewing and monitoring are still worthwhile activities and they can be used to ensure there is conformity to laws and

regulations. However, in assessing conformity it is important to distinguish between bona fide change and progress and simple existence of structures or efforts. Thus reviewing and monitoring for equity should be conducted with an eye toward measuring progress in reducing sex discrimination and stereotyping. Some suggestions follow about measures to assess progress in reducing sex discrimination and stereotyping.

Enrollment and Staffing Patterns. These are perhaps the ultimate outcome measures. They may be the most resistant to change but some changes here will be the true indicators that choices are not being restricted by sex and that economic equality between the sexes is being fostered.

Other data that may be useful are:

Salaries. Do men and women who are approximately equally qualified earn the same amount for equivalent work? Do male and female work/study or cooperative education students earn equal amounts for like work? Do they have an equal chance at the more lucrative jobs?

Advancement. Are persons of one sex advanced from the ranks with disproportionate frequency? Are student leadership roles, particularly those that staff have a hand in selecting, disproportionately filled by members of one sex?

"Housekeeping" Roles. Do committee assignments fall with disproportionate frequency on members of one sex when this is not justified by expertise? Are a disproportionate number of men or women chosen as classroom assistants?

"Unobtrusive" Measures. Events can be counted. Do students inquire more frequently about nontraditional courses of study? Is the sex equity coordinator more routinely consulted by occupational area specialists? Are more individuals setting up workshops for staff? Are sexist remarks less frequent in the lunchroom? Are proequity activities increasing and inequitable practices decreasing in the classroom?

Funding Criteria

- Are funds specifically earmarked for activities to lessen stereotyping?
- Do reviews of funding requests take antistereotyping components into consideration?
- Are antistereotyping activities among the purposes for which discretionary funds may be used?

Materials review and development

- Are curriculum and recruitment materials routinely reviewed for stereotyping? Are actions taken in the event that stereotyping is found?

- Are publicity materials available to the media or to employers reviewed to assure that they are not stereotyped? Are actions taken to eliminate any stereotyping found?

- Are specific materials developed to point out the opportunities available in nontraditional areas? To encourage students to look into nontraditional opportunities? To gain media coverage of nontraditional students or workers?

- Are projects funded to develop nonstereotyped curriculum materials when they are not available? Are efforts made to work cooperatively with publishers of curriculum materials to lessen stereotyping?

- Are materials developed to use at inservice sessions to alert staff to stereotyping and what they can do to overcome it? Is there cooperation with teacher training institutions in development of preservice materials to train prospective teachers to lessen stereotyping?

Student awareness activities

- Are programs sponsored or undertaken directly to make students aware that men and women can fill the same range of jobs?

- Are there programs for students to identify stereotypes they may hold--"women don't need to work," "only an effeminate man would be a nurse," and so on--and to correct these impressions?

- Are programs funded or sponsored to give students a chance to try nontraditional roles? Are classes organized so that both girls and boys take shop and home economics, drafting and typing, and otherwise have equal opportunity to prepare for entry into vocational programs?

- Are efforts undertaken to ensure that those in a position to guide students present options based on student capabilities and interest, not on sex?

Staff awareness activities

- Are efforts undertaken to alert staff to the nature of stereotyping, its effects and manifestations?
- Are training programs offered to help staff deal effectively with stereotyping in working with students or with other staff or in working with employers, parents, or other persons outside the educational system, who are critical of efforts to eliminate stereotypes?
- Are efforts made to inform staff about stereotyping within the vocational education system itself, and to encourage them to take action in their own domains of responsibility to eliminate the stereotyping?

3. The role and the effectiveness of the vocational education sex equity coordinators need to be examined once these individuals have been on the job for sufficient time to have an impact.

At the time of data collection for the AIR study, most sex equity coordinators were very new to their jobs. Thus, in a sense, their reports of activity could only be reports of what they intended to do. Many were still establishing themselves and their credibility and had yet to implement activities. A further examination will be required in order to determine how effective they are. It will be important to study the activities of these individuals to determine which produce the best results under what circumstances. Since the coordinators' position within the State structure and experience varies considerably by State, it will be important to observe how these factors related to effectiveness. Clearly, the sex equity effort cannot be left to the coordinator alone, but this person's role will be vitally important in that effort. In order to fully use this position, systematic study of the sex equity coordinators' role and effectiveness will be needed.

4. A concerted effort must be made to identify and disseminate exemplary programs and strategies for overcoming sex inequities in vocational education.

Currently there are not many examples of successful efforts to reduce sex inequities in vocational training programs. However, many States and districts appear to be ready to take the risk of setting up and implementing programs and activities if they have sufficient information on what to do and what works. Thus, it is critical that information on successful strategies be disseminated to the widest possible vocational education audience. The case studies contained in Volume III of the AIR study are an important step in this direction.

The U.S. Office of Education established the Joint Dissemination Review Panel (JDRP) to approve programs for dissemination. Once passed by the JDRP, programs are eligible for dissemination funds. Program developers should be encouraged to use JDRP, and aided in this effort to collect adequate data and documentation of program procedures and outcomes. The Federal Government could play an active role in this effort and in helping programs already identified to obtain JDRP approval. Furthermore, it could play an active role in the identification and support of additional exemplary programs.

The strength of the requirements in the current legislation should not be diminished. Further incentives should be developed for active programmatic efforts to combat inequities. These should include incentives for developing and/or adopting exemplary sex equity programs, for developing programs and strategies which create liaisons with employers and the community in an effort to foster equity, and incentives to teacher training institutions to encourage more nontraditional staff. It is imperative that continued attention be given to the issue of sex equity in vocational education and this effort must emanate from the Federal, State, and local levels.

APPENDIX

Agenda

CONFERENCE ON

EDUCATION, SEX EQUITY AND OCCUPATIONAL STEREOTYPING

May 5, 6, 1980

New South Faculty Lounge

Georgetown University

Monday, May 5 - Vocational Education

8:00-8:30 Coffee and Donuts

8:30-8:45 Introduction/Welcome

8:45-10:00 I. Differential Treatment of Women and Men in Vocational Education Programs

A. Enrollment and Staffing Patterns

Laurie Harrison, American Institutes for Research

B. Budget Data

Jan Grassmuck, Congressional Budget Office

C. Do differential participation rates reflect differences in demand or supply? Evidence from the experience of women in the military.

Sue Berryman, Rand Corporation

D. Discussion

Gene Bottoms, American Vocational Association

Roslyn Kane, Rj Associates

Open Discussion: All Participants

Break

10:15-12:00 II. Differential Effects of Vocational Education on Men and Women

A. National Survey Data--The National Longitudinal Survey

John Grasso, Comparing the Labor Market Effects for Men and Women
Sandra Hofferth, Comparing the Labor Market Effects for Men and Women

B. National Survey Data--NSL Class of 72

Annegret Harnischfeger, Comparing the Labor Market Effects for Men and Women

C. Description of the Survey (in progress) of the Effects of Vocational Education on Students

Elinor Woods, The Huron Institute

D. Discussion/Critique

David Wise, JFK School of Public Affairs, Harvard University
Arvil V. Adams, George Washington University

Lunch

1:00-2:30 III. New Initiatives to Improve the Treatment of Women in Vocational Education

A. The Sex Equity Guidelines and Title IX

Barbara Bitters, Bureau of Occupational and Adult Education

B. The AIR Study of Sex Equity in Vocational Education

Laurie Harrison, American Institutes for Research

C. Comments by Sex Equity Coordinators

Loydia Webber, Georgia
Carol Jabonaski, New York
Anna Biermeier, Wisconsin

D. Discussion

Janet Wells, Lawyers Committee for Civil Rights Under Law
Louise Vetter, National Center for Research in Vocational Education

Open Discussion: All Participants

Break

2:45-4:30 IV. A Look Towards The Future. Can/How Can the Federal Government Improve the Treatment of Women in Vocational Education?

(ten minute statement by each person listed; then discussion)

Carol Gibson, NACVE and NCEP
David Evans, Subcommittee on Education, Arts and Humanities of the Senate Labor and Human Resources Committee
Phyllis McClure, NAACP Legal Defense and Educational Fund

Open Discussion: All Participants

4:30 Adjournment

Tuesday, May 6 - Secondary Education

8:00-8:30 Coffee and Donuts

8:30-8:45 Introduction/Welcome

8:45-10:30 I. A. Views of Appropriate Roles of Women

1. Books and Other Teaching Materials

Myra and David Sadker, American University Books and Materials Used in Teacher Training

Jeana Wirtenberg, National Institute of Education - Books and Materials Used by Students

2. Counselors/Counseling

Mary Ellen Verheyden-Hilliard, Education Equity Institute - Review of the Research

Lee Richmond, Johns Hopkins University Case Study in Maryland

(9:45) Discussant: Linda Waite, University of Illinois

Open Discussion: All Participants

Break

10:45-12:00 I. B. Views of Appropriate Roles of Women

1. Differential Treatment of Women in the Classroom

Susan Klein, Barbara Richardson, National Institute of Education, Review of the Research

Rebecca Lubetkin, Training Institute for Sex Desegregation of the Public Schools - Ways of Intervention

2. The Effects of Role Models in Schools

Charol Shakeshaft, Hofstra University

(11:30) Discussant: Marlaine Lockheed, Educational Testing Service

Open Discussion: All Participants

Lunch

1:15-2:30 I. C. Views of Appropriate Roles of Women: Math and Science

Susan Chipman, National Institute of Education - Review of the Research

Lynn Fox, Johns Hopkins University Effects of Boys' and Girls' Career Orientation on Proclivity to Enroll in Math and Science Courses

Paula Quick Hall, American Association for the Advancement of Science Minority Women in Math and Science

(2:00) Discussant: Jacquelynne Parsons, University of Michigan

Open Discussion: All Participants

Break

2:45-4:30 II. Policy Issues

A. Can the Federal Government Change What Happens in the Local School Districts?

B. Where is Title IX Most/Least Effective?

C. Is New Legislation/Funding Needed?

(Short statement by each person listed)

Ruth Love, Superintendent, Oakland Public School Systems, and NCEP member

Shirley McCune, Associate Commissioner, Equal Educational Opportunity Program

Holly Knox, Project on Equal Education Rights

Leslie Wolfe, Women's Educational Equity Act Program

Clark Leming, Office for Civil Rights, Department of Education

Open Discussion: All Participants

4:30 Adjournment

PARTICIPANTS

AT THE

NATIONAL COMMISSION FOR EMPLOYMENT POLICY

CONFERENCE ON

EDUCATION, SEX EQUITY AND OCCUPATIONAL STEREOTYPING

May 5 and 6, 1980

GEORGETOWN UNIVERSITY

Arvil V. Adams, George Washington University

Sue Berryman, Rand Corporation

Anna Biermeier, Sex Equity Coordinator, Wisconsin

Barbara Bitters, Bureau of Occupational and Adult Education, Department of Education

Eugene Bottoms, American Vocational Association

Susan Chipman, National Institute of Education

David Evans, Subcommittee on Education, Arts and Humanities of the Senate Labor and Human Resources Committee

Lynn Fox, Johns Hopkins University

Jan Grassmuck, Congressional Budget Office

John Grasso, West Virginia University

Annegret Harnischfeger, CEMREL

Laurie Harrison, American Institutes for Research

Sandra Hofferth, The Urban Institute

Carol Jabonaski, Sex Equity Coordinator, New York

Roslyn Kane, Rj Associates

Susan Klein, National Institute of Education

Holly Knox, Project on Equal Education Rights

Clark Leming, Office for Civil Rights, Department of Education

Marlaine Lockheed, Educational Testing Service

Rebecca Lubetkin, Training Institute for Sex Desegregation of the Public Schools

Phyllis McClure, NAACP Legal Defense and Educational Fund

Shirley McCune, Associate Commissioner, Equal Educational Opportunity Program

Jacqueline Parsons, University of Michigan

Paula Quick Hall, American Association for the Advancement of Science

Barbara Richardson, National Institute of Education

Lee Richmond, Johns Hopkins University

David Sadker, American University

Myra Sadker, American University

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Linda Waite, University of Illinois

Loydia Webber, Sex Equity Coordinator, Georgia

Janet Wells, Lawyers' Committee for Civil Rights under Law

Jeana Wirtenberg, National Institute of Education

David Wise, The John F. Kennedy School of Public Affairs

Leslie Wolfe, Women's Educational Equity Act Program

Elinor Woods, The Huron Institute

Representing the National Commission for Employment Policy

Carol Gibson, National Advisory Council on Vocational Education and National Commission for Employment Policy

Ruth Love, Superintendent, Oakland Public School Systems and National Commission for Employment Policy

Ralph Smith, Acting Director

Patricia Brenner, Staff Associate

Patricia Hogue, Staff Associate

Wendy Wolf, Staff Associate

Laura von Behren, Executive Assistant

Special Reports of the National Commission for Employment Policy

Proceedings of a Conference on Public Service Employment, Special Report No. 1, May 1975
(NTIS Accession No.. PB 291135)*

Manpower Program Coordination, Special Report No. 2, October 1975
(NTIS Accession No : PB 291217)*

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Education, Sex Equity and Occupational Stereotyping Conference Report, Special Report No 38, October 1980 •

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An Interim Report to the Congress of the National Commission for Manpower Policy: *The Challenge of Rising Unemployment*, Report No. 1, February 1975 (NTIS Accession No : PB 291136)*

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Third Annual Report to the President and the Congress of the National Commission for Manpower Policy: *An Assessment of CETA*, Report No. 7, May 1978. (NTIS Accession No.: PB 296829)*

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which may be obtained from the publishers at the adresses indicated below:

From School to Work: Improving the Transition, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, August 1976. Stock No. 040-000-00364-9. Price $3.00.

Employability, Employment and Income: A Reassessment of Manpower Policy, Olympus Publishing Company, Salt Lake City, Utah 84105, September 1976.

Jobs for Americans, Prentice-Hall, Inc., Englewood, Cliffs, New Jersey 07632, October 1976.

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