THE ROLE OF EDUCATION IN DETERMINING YOUNG WOMEN'S CAREER OBJECTIVES AND EXPECTATIONS FOR ADVANCEMENT OPPORTUNITIES

by

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The Role of Education in Determining Young Women's Career Objectives and Expectations for Advancement Opportunities

The existence of sex discrimination in corporations has been well studied and documented. Rosabeth Moss Kanter, in particular, has done a careful study of the problems of women in corporations in her book, Men and Women of the Corporation. While the numbers and percentages of working women have increased dramatically since 1970, relative wages have not. Part of the reason for this is apparently that women are concentrated in lower-paying, lower-prestige jobs. According to Kanter, women constitute:

> 73.78 percent of the clerical and like workers,
> 82.14 percent of the bookkeepers,
> 81.84 percent of the billing clerks,
> 68.96 percent of the payroll and timekeeping clerks,
> 82.08 percent of the file clerks,
> 93.46 percent of the stenographers,
> 94.18 percent of the typists,
> 94.65 percent of the receptionists, and
> 97.71 percent of the secretaries in the workforce (op. 17-18).

"While women's need for money is just as real as men's, inequities at the workplace are constant reminders that women's

work is not viewed in the same way as men's (Shapiro and others, p. 103)."

That discrimination is largely responsible for gender stratification is also a given. Form's study showed that "except for union membership and weeks and hours worked, sex explained more than any other variable, (p. 137)" in her analysis of earnings. She concludes, "In short, women workers formed an economic substratum everywhere (p. 137)."

> If a woman does work, the process of choosing her work as well as the nature of the work itself can be dehumanizing in a way it will not be for a man. Because of an entrenched 'old boy network,' from which so many opportunities for training as well as opportunities for skilled jobs are secured, many professionally-trained women who can afford day care and domestic help are still excluded from jobs for which they might otherwise be qualified. Such a male network often allows women into middle-management but no higher; it continues to compensate women financially far less than men in the same job category. And by confining the majority of working women to jobs with relatively low job status, women as a sex are redefined as the inferior sex (LeMoncheck, p. 139).

On the average, women earn smaller incomes than men, even when controlling for educational attainment. The median annual income of female high-school graduates is only 64.9 percent of the median annual income of male high-school graduates (1985 figures), the salaries being $15,481 and $23,853 respectively (Center for Education Statistics, p. 288, See Appendix 1). One might think the situation improves with higher education, but the statistics indicate the discrepancy continues, with female college graduates earning only 65.9 percent of their male counterparts, the salaries being $25,928 and $39,335 respectively (p. 288). Expressed in other terms, a female college graduate

can hope to earn only $2,075 a year more than a male high-school graduate!

A further analysis of the various levels of compensation and education reveals that the segregation continues through all levels of society. At the top of the economic ladder, earning $75,000 or more a year, one finds 9.7 percent of the men who have completed five or more years of college. One finds only 0.9 percent of the women with comparable education. Women with this amount of education can expect an average high in lifetime earnings of $20,300--by age 54. A man with the same amount of education can achieve an average high in lifetime earnings during the same time span--of $39,981 (pp. 286-87, See Appendices 2, 3).

> The current and past experience of women in the American labor market includes both class and gender discrimination. . . . (As) factory and blue-collar jobs increased in status and pay women were pushed out of most except the least desirable (Halle, p. 214)."

Women hold subordinate positions in corporate life for a variety of reasons, and of chief importance among these is socialization. The role of girls' expectations as a result of their childhood socialization is the thesis of this paper. The reasons for analyzing the effects are clear when considering attitudes such as the following:

> . . . since a whole generation of older, more traditional male leaders will retire soon, younger men will be more supportive of female executives. In addition, the next generation of women has terrific role models to emulate in the pioneers who fought their way to the general management level, easing the way for all who follow (Morrison and others, p. 156).

This belief is expressed by men and women alike today, and can be dispelled only by a close examination of the literature. It is, unfortunately, "more myth than reality (Morrison and others, p. 156)." The actual occurances of equality in the business world are statistically few.

One of the reasons for the poor socialization that is taking place is the pervasive belief that boys are worth the effort, expense, and trouble of educating. As Dale Spender says,

> Today it is not unusual to find many who would argue that education is more important for a boy, and that given limited resources, the money is better spent on a boy. This argument even prevails with local education authorities who. . . allocate more resources to boys' education than to girls' (p. 152).

The careers that boys and girls are expected to have when they grow up are what justify the preference. As one researcher said, "Women are referred to, thought about, and acted toward as the primary caretakers of home and hearth, whatever else they do, and so unfit for the rational, working world of men (LeMoncheck, p. 140)." Furthermore, the boy who is too much like a girl is punished, whereas the girl who is too much like a boy is merely patronized. As one researcher expressed it, ". . . to be a tomboy is, one might say, to be upwardly mobile, while to be a sissy is to ape a despised sex (Harrison, p. 8)."

The results of such socialization are evident in any of a million anecdotes which tell of everyday occurences. One example is a four-year-old boy who insisted the woman at a health clinic could not be the doctor because she was a woman.

> The fact that by four years of age the boy had already absorbed the idea that only men are doctors attests to the strength of sex-role stereotyping in American medicine. Only eight percent of American physicians are women. . . (Walsh, p. ix).

These and many other stereotypes and subtle discriminatory actions must be changed, for as one researcher predicts, ". . . by the end of this century all women who are able will be working (Shapiro and others, p. 103)." However, the problem goes beyond the need for work. It encompasses the nature of humankind and the importance of self. Komarovsky elaborates:

> If men continue to be socialized to suppress emotional expressiveness at the threat of appearing "sissified," they will be deprived of the capacity for emotional intimacy. If women are made to feel that self-confidence and ambition to succeed in work are "abrasive" and "castrating," they will continue to fail to develop their full human potential. Must we not abandon these false dilemmas and try to rear both little boys and little girls to be warm and strong, creative and sensitive, able to accept responsibility for themselves and for others? Ideally these are attributes that in various degrees must be combined in all human beings, played out at different times as the situation demands. We need to present to both sexes more vivid models of egalitarian relationships in order to replace the traditional beliefs so deeply etched in social consciousness.
>
> The changes in psychological sex stereotypes will continue to be resistant to change as long as society maintains the traditional ideology concerning role segregation of the sexes within the family. Such changes are needed for many reasons, including the huge increase in the proportion of working mothers that generally places upon women the triple burden of working, childrearing, and homemaking.
>
> In essence, the equality that the women in this study claim as their due in the public spheres--economic, political, cultural--will not be realized for the vast majority as long as we maintain gender-role segregation within the family, with no alternative real options. . . .
>
> Real options for men and women will be available only when our society includes--along with economic success, creative professional achievement, athletic prowess, and political power--esteem for nurturant

> socialization of children not as a task for women only (Komarovsky, pp. 316-17).

The role of socialization, then, is of primary importance to this research. The various influences or socializers upon a child include the child's parents, teachers and guidance counselors, peer groups, media used in school and outside school. I have chosen to concentrate on the various influences encountered in school--teachers, guidance counselors, and media. It is my belief that, to effect change in sex stereotypes, one must first change the beliefs and actions of these school socializers. Although this is a slow approach, it is a sure one. To illustrate the importance of making this change, I would like to quote Betty Friedan.

> The problem that has no name--which is simply the fact that American women are kept from growing to their full human capacities--is taking a far greater toll on the physical and mental health of our country than any known disease. . . . If we continue to produce millions of young mothers who stop their growth and education short of identity, without a strong core of human values to pass on to their children, we are committing, quite simply, genocide, starting with the mass burial of American women and ending with the progressive dehumanization of their sons and daughters. . . . We need drastic reshaping of the cultural image of femininity that will permit women to reach maturity, identity, completeness of self, without conflict with sexual fulfillment. A massive attempt must be made by educators and parents--and ministers, magazine editors, manipulators, guidance counselors--to stop . . . girls from growing up wanting to be "just a housewife," stop it by insisting with the same attention from childhood on that parents and educators give to boys, that girls develop the resources of self, goals that will permit them to find their own identity (p.364).

Other authors feel the same. One writer felt that sex role stereotyping needs to be eliminated,

> because the livelihood and health of the American nation depend upon the talents of all its members, because the absence of restrictive stereotypes enhances the liberty and human potential of all persons and because simple fairness and equity demand it (Saario, Jacklin, and Tittle in Rich and Phillips, p. 122).

By way of delineating my line of thought, I would like to quote a source which not only defines socialization but also reinforces the belief in the importance of ending sexually differentiated socialization:

> Socialization is the process of preparing children to assume adult statuses and roles. The family, the school, the church, peer groups, economic institutions, political institutions, and the media would be identified by most thoughtful people as the principal socializing institutions in our society. Of these institutions only the school has the socialization of youth as a principal function. Schools, whether formal or informal, whether inner city or rural, function as transmitters of certain societal norms and mores from one generation to the next (Saario, Jacklin, and Tittle in Rich and Phillips, p. 99).

These same authors also agree that, although parents are important socializers in a child's life, schools are also very important, and possibly, are more important that parents (p. 101).

The problem with schools as institutions for socialization, at least as feminists see it, is that, within a sexist society, schools "mold children willy-nilly according to societal notions of acceptable behavior (Harrison, p. 25)." In a sexist society, this means that schools perpetuate the sex stereotyping of that society. As Dale Spender says, "Currently, education and schools play a significant role in constructing male supremacy and in

perpetuating male dominance and control (pp. 6-7)." Furthermore, this means that girls are learning,

> . . . the lessons of subordination. They are learning to hide their skills so that men may look superior. They are learning to project and promote a positively inflated image of men. . . . While education continues to indoctrinate and constrain as it does, we cannot know what women could be (Cline and Spender, pp. 64-5).

One study asked women who they felt was to blame for their childhood socialization; most said it was the fault of the teachers. A commonly held view was that society could change if the teachers would change, although some women felt the "teachers were as much 'products of socialization' as were women themselves (Cline and Spender, p. 57)." This study also found that 100% of the respondents reported "examples of harassment and 'teasing' and could comment on the impossibility of trying to make a complaint (p. 58)." One woman went so far as to remark that she felt little had been changed since Jane Austen wrote, "A woman, especially if she should have the fortune of knowing anything, should conceal it as well as she can (p. 61)."

The importance of effecting change in sex-role stereotyping is stressed by Harrison: "Our children are not learning to be their best selves; they are learning what society--male-dominated society--requires females to be, and what society requires males to be (p. 11)." The importance of effecting change through teachers was stressed in this comment to a Sex Roles Committee member at Woodward School, a private school on the east coast: "If we never appeared again, teachers with raised consciousness would raise the consciousness of others. In individual

classrooms things would happen (Harrison, p. 172)." Florence Howe has also stated the importance of the role of the teacher: "Because most public school teachers are women, and because their numbers are so vast, I see them as key to changing the education of women (and men) (in Frazier and Sadker, p. xiii)." She continues:

> Of all the means for implementing change, I would place priority on the education of teachers, both female and male. Women teachers who begin to understand their own lives in the context of sex-role stereotyping and sex bias are especially likely to be the most crucial agents for change. They are, indeed, closer to the ground than others in the system. Most important, the teacher is the single most powerful influence on children's school lives--more important, I believe, than textbooks or other curricular materials. When teachers "change," so does everything in their classrooms. When teachers begin to intervene in the rigid sex-typing of children in classrooms, when they begin to question the four-year-olds who are convinced that only boys can be sent into space, the eight-year-old girls who have already given up on math and science--only then will we have begun to create an atmosphere of equality and opportunity for our daughters and sons in schools (Howe in Frazier and Sadker, p. xiv).

The changes which must take place in schools go beyond what teachers can do to include changing the philosophy of the schools themselves. As Shapiro, Kramer, and Hunerberg concluded,

> While the legal changes that are necessary for equity in the workplace are beyond the scope of schools, attitudinal ones are not. Children's views toward work have not escaped the biases of the adult world. Their attitudes reflect the continuing force of stereotypic thinking even in the face of new realities. The majority of girls in schools today still limit their view of their future role to becoming mothers and homemakers. When they think of work outside the home, many continue to choose occupations that fall into the traditional pattern of secretary, nurse, teacher, and librarian. . . . What is perhaps even more significant

> for schools is that attitudes are found to persist and shape later career decisions (p. 105).

Thus, attitudes are the first thing that must be changed. This must include the attitudes of the girls themselves, despite the magnitude of such an undertaking. As Betty Friedan said, ". . . girls must be encouraged to go on (with their education), to make a life plan. . . . (for) it is the fact that women have no identity of their own that makes sex, love, marriage, and children seem the only and essential facts of women's life (pp. 366-67)."

On a more practical level, curricula must also change. As Saario, Jacklin, and Tittle conclude,

> Schools should make available to girls as well as boys a full range of options in physical education and interscholastic athletics. Shorthand and typing skills are at least as useful to boys as woodworking. The school curriculum has clearly functioned to reinforce rigid, educationally discriminatory, and sexually stereotypic attitudes in both students and school staff. Schools seeking to free the next generation of youth from the dysfunctional constraints of the past will have to change curricular requirements and redress inequities in the options open to boys and girls. But in order to accomplish these structural reforms schools must face the serious problem of changing the attitudes of administrators, counselors, and teachers (p. 120).

The scope of this paper is to include how schools socialize girls to accept a lesser share of the American dream: how girls are selectively steered toward a non-technical curriculum and thus are limited to lower-paying, lower status jobs (not careers); how girls are discouraged from doing well in math and science; and how girls are taught societal norms encouraging them to become homemakers and nurturers. As a mother of daughters

and an educator myself, I find this information to be of crucial importance to my students, my daughters, and myself.

HOW TEACHERS SOCIALIZE CHILDREN

Although one might think an examination of sexism in schools need not begin as early as the elementary classroom, there is actually evidence which shows that it begins even earlier--in nursery school. One mother reported removing her daughter from her nursery school, citing differential and discriminatory treatment toward the girls. Girls were required to serve the boys' snacks and clean up after them; girls were confined to corners of the playground at recess while boys had free run of the entire area; girls were subjected to the boys' insults; and all children learned history by learning about men's achievements exclusively (Cline and Spender, p. 59).

Dale Spender is an educator and researcher who questioned the amount of attention received by boys and girls in her own elementary-school classroom. Although she knew that many teachers pay more attention to boys but are inclined to say they do not, she honestly felt that she was giving equal time to boys and girls. She conducted a study of herself and other teachers, videotaping classroom sessions after the teachers had been instructed to give equal attention to children of both sexes. In her analysis of the data she stated that none of the teachers gave the boys less than 58 percent of her attention, and this was true even in the case of one teacher who said she felt she had overcompensated and had paid more attention to the boys. The average amount of attention paid to the girls was 37 percent (Spender, p. 56).

Spender concluded that teachers who consciously attempt to change the proportion of time spent on boys versus girls are always going to be unsuccessful until there are societal changes because sexism is so pervasive. She cites "our ways of looking at the world" in saying that we are so used to the male persuasion that we are often unaware of it (Spender, p. 56).

> The students know that girls are expected to be quiet and docile. . . both sexes stated that asking questions, challenging the authority of teachers, demanding reasons and explanations--in short behaving in an active way in the classroom--was a masculine activity. And both sexes know that girls who do not conform to these expectations are likely to be punished (Spender, pp. 59-60).

The use of language is also an important part of children's socialization. The use of words, especially those like "tomboy" are often used in a derogatory way, helps to mold a girl's image of herself (Fried in Hubbard and others, p. 31). Furthermore, Fried found that tomboyish girls gave priority to future careers and that such priority was "typically based on high achievement in school and on high IQ (p. 49)."

Another reason cited by one researcher for the prevalence of differential treatment, discrimination, and sex role segregation is that it has simply never been singled out for examination. As Spender put it, "One of the reasons that male control continues in mixed-sex classrooms is because its operation has not been exposed (p. 65)." This is despite the fact that many women have reported a feeling that they (or their daughters today) were discouraged from doing well in subjects in school which were

considered to be "boys'" subjects. One woman summarized her feelings this way:

> "I remember feeling it was OK to be good in English, but horrible to be good in math, and I had to pretend to hate science. History was sort of up for grabs. . . . It was touch and go whether you could allow yourself to be good at it or not (Harrison, p. 34)."

The emphasis placed on "appropriate" behavior extends into socialization which stresses "appropriate" careers for girls. One researcher (Looft) found that 75 percent of six- to eight-year-old girls interviewed wanted to be either a teacher or a nurse (Saario, Jacklin, and Tittle in Rich and Phillips, p. 100). All of the girls' career preferences fell into a total of eight potential occupational categories. However, only 40 percent of the boys in the same age group chose two occupations--football player and fireman. The boys' career preferences fell into a total of eighteen different potential occupational categories. Looft's conclusion: "Differential socialization could account for these results (p. 100)."

The art of education is indeed perceived as feminine. It is "exacting, time-consuming, humdrum but necessary (Harrison, p. 41);" therefore it falls to the women of this society to fill the role of the educator. It is for this reason that it is an "appropriate" career for girls to aspire toward. The attitude of the schools is especially important in defining the children's aspirations. Schools have been said to,

> define specific attitudes, modes of acting, and opportunities which are appropriate for boys and girls. This serves to limit the choices open to each sex and

> contributes to a sense of inadequacy when individuals do not live up to the stringently defined norm or average (Saario, Jacklin, and Tittle in Rich and Phillips, p. 100).

Another influence on children's socialization is the textbook used in the classroom. As Harrison observed in 1973,

> Early-childhood readers celebrated stereotypical nuclear-family roles: mothers and girls stay home and clean, fathers go off to work, and boys have adventures. Not only is this demeaning and cruelly limiting, it does not even accurately reflect children's reality (p. 38).

Several studies have been done which analyzed the textbooks used in American classrooms. An older study of third-grade readers, done in 1946 by Child, Potter, and Levine, found that females constituted only 27 percent of all central categories, and they were always shown in roles of affiliation, nurturance, harm-avoidance, or of being nurtured (Saario, Jacklin, and Tittle in Rich and Phillips, p. 102). Males, on the other hand, constituted 73 percent of all central characters and were shown providing information, being aggressive, achieving, constructing, gaining recognition, and being active.

In a more current study, U'Ren (1971) found that 75 percent of the characters were males with less than 20 percent female (Saario, Jacklin, and Tittle in Rich and Phillips, p. 103). Many stories in the readers analyzed for this study were found to contain male main characters and no female characters, although many stories with female central characters included males. Also, the stories for and about girls were shorter. The textbooks analyzed in this study were all recommended by the California State Board of Education.

In a 1972 study, Graebner found that, "no change in the portrayal of the role of women has occurred," and concluded that "texts 'have not kept pace with a changing society (Saario, Jaclin, and Tittle in Rich and Phillips, p. 103).'" This study included 554 stories used at that time in classrooms throughout the United States.

Another 1972 study (DeCrow) found that textbooks which portrayed women who were working outside the home always showed them working as teachers or nurses. These working teachers and nurses were always addressed as "Miss," which seems to imply that married women do not work. Furthermore, in these same textbooks,

> Men were more often depicted as making decisions, including household decisions. Boys showed initiative, were creative, and did things while girls were fearful, dependent, and watched other people doing things (Saario, Jacklin, and Tittle in Rich and Phillips, p. 103).

Jacklin's 1972 study found fewer female than male characters. In the textbooks she analyzed, boys were shown to be aggressive and/or physical, and were often involved in problem-solving activities. Girls were more likely to be shown engaged in fantasy, quiet, introspective, and/or directed behavior. Men in the textbooks were shown engaged in constructive physical, and problem-solving behavior. The women were portrayed as conformers and talkers. Men were always shown outdoors or in business, women in the home or school (pp. 105-108). Jacklin also found that there were changes in the readers when tracing them from kindergarden to third grade.

There was a marked increase in the number of men and a decrease in the number of girls. There was also an,

> increase in the number of significant sex differences between males and females for both child and adult behaviors, consequences, and environments. The stereotypic portrayal of male and female roles (both child and adult) increased with grade level (p. 108).

The problem with textbooks, therefore, is that they do not reflect reality for many children. These include children of divorced parents, with working mothers, and from ghettos. Textbooks are providing these children with a world that is sterile and unrealistic. The question of what we are doing to these children's aspirations when we present them with this fairy tale world is an important one.

> Rather than limiting possibilities, elementary texts should seek to maximize individual developement and self-esteem by displaying a wide range of models and activities. If the average is the only model presented to a child and therefore assumed to be the child's goal, most children--and most adults--would probably be unable to match the model (p. 110).

One idea proposed by Cline and Spender seemed to be repeated throughout most of the literature; that is, that schools' curricula center around men, from nursery school through college, because the males involved in the educational process will make a fuss if they are not (p. 60).

> From a survey of the educational curriculmum it would be reasonable to conclude that the deeds of men are held up for praise while those of women are overlooked. It would be reasonable to conclude that the feats of great men are emphasized--which is how they get to be great men--while those of women are rendered invisible--which is why there are so few great women (pp. 60-61).

Spender even goes so far as to facetiously summarize how prevalent the emphasis is on male achievements in textbooks:

> If tomorrow the "demand" for books on men's studies were to decline it would be called a recession--but if the demand in women's studies were to decline it would be called a return to normal--the current "fashion" would have passed. Many "expect" such an eventuality and are in a position to help make their expectations come true (p. 149).

Yet another aspect of children's socialization in schools is the use of testing materials. Although these materials are not as important as teachers or textbooks, they have been found to have influence. Tittle's study found that testing materials studied included numerous sex role stereotypes. These were standardized testing materials used nationwide throughout the child's education. Her conclusion: A revision of pronoun usage as well as of examples would not be that difficult to accomplish and would be beneficial to the girls taking the tests (Saario, Jacklin, and Tittle in Rich and Phillips, p. 115).

Elementary school is not the only place where sex-role stereotyping and negative socialization take place, and it is not the first place where it occurs, but because it is the first major socializer outside the home, it is very important. It is here in elementary school that the child begins to fathom the "real" world, and it is for this reason that sex-role stereotyping has such an impact. Therefore, the elementary school must be the target of an effort to eliminate such socialization. The Carnegie Commission on Higher Education concluded its 1973 study thus:

> The first priority in the nation's commitment to equal educational opportunity for women should be placed on changing policies in pre-elementary, elementary, and secondary school programs that tend to deter women in their career goals. This will require vigorous pursuit of appropriate policies by state and local boards of education and implementation by school administrators, teachers, and counselors (p. 56). . . . But we see the most important need as a change in attitude all the way along the line--on the part of parents, school-teachers, school counselors, college admissions officers and other administrators, faculty members, and college counseling staffs (p. 165).

This conclusion is also borne out by Feldman, who says,

> Setting up quotas on the basis of sex, while increasing female representation, is a token gesture and will not eliminate the different training that many women bring to colleges and universities. Education at all levels can respond by weakening the stereotyped conception of what each sex is suited for. Women should not be counseled out of (or counseled into) masculine fields simply because they are women. This counseling begins early--at the elementary level or before. Higher education cannot magically create equality, because even as freshmen, many women do not enter with the same training and skills as men. Higher education, however, is just as guilty as other aspects of education in perpetuating the belief that women are naturally suited for some fields and men are naturally suited for others (p. 138).

In the junior high school classroom, the situation becomes worse rather than better. For example, in 1972, of the seventh graders tested (ratio of boys to girls: 56:44), only eight percent of the boys scored higher than the highest girl. However, the following year, 27 percent of the eighth graders scored higher than the highest-scoring girl (Brush in Rich and Phillips, p. 253). It is also at this stage that girls are truly punished by the educational system for excelling in "boys'" subjects. As one expert summarized the situation,

> The girl who knows, who excels, is frequently scorned by members of both sexes who see her breaking the social code. And her behavior is seen as even more unfitting--and more open to rebuke--if she "shows off" in a subject that has been appropriated by the boys. A little more leeway is granted to girls to be good in the less career-oriented subjects (such as art or music) but when it comes to the more serious and "professional" areas of science and maths, girls can be made quickly and crudely aware that they are intruding if they are unwise enough to do well (Cline and Spender, pp. 51-52).

The women interviewed by Cline and Spender were not at all mystified as to why girls do poorly in math and science. "Most did not hesitate to declare that the woman who does well in these fields is found to be unfeminine. For many women, to be unfeminine is to be a failure (p. 53)." Many women reported their daughters' today being teased and in some cases physically abused (boys' twisting their arms, overpowering them on the playground, and so on) for excelling in math and science. Some girls simply gave up in those subjects in order to fulfill their desire to be popular. "They know that boys do not ordinarily like 'girls who wear glasses' and who are good at math and science (p. 53)."

These statements and case histories have been well substantiated by statistics. National Assessment of Educational Progress scores for 1984 show girls age nine and 13 score better than boys in reading and mathematics, and boys age 17 scored better than girls in mathematics. In the science areas tested--content, inquiry, and science, technology, and society-- boys scored better than girls at ages nine, 13, and 17 (1982 data, Center for Education Statistics, pp. 87, 89-90, See Appendices 4-6).

Furthermore, it was not only the boys in the classroom who put pressure on the girls to do poorly, but also their teachers, usually with not-so-subtle remarks about the girls' beating the boys and the boys letting them (pp. 53-54). Many women felt that, more significantly than undermining girls' achievements in math and science, schools themselves worked to instill self-doubt in girls. Girls were treated as second-rate and made to believe they couldn't do the work--leading to what is often termed self-fulfilling prophecy. They lost their confidence and were no longer even willing to try (p. 55). To summarize, "In the words of the eminent American educationalist Florence Howe, girls are still learning to be 'silly or silent' in the classroom in order to set up the seeming supremacy of the male (Cline and Spender, p. 57)."

The way in which children in junior high school are counseled and molded for high school and later life is another important aspect of their socialization. One researcher repeated a remark made by one pre-teenager: "Men don't want to be secretaries, women do (Harrison, p. 162)." Unfortunately, the sex of the speaker was not reported, but it is doubtful that it matters. The fact that the child believed it and said it is sad litany enough to the prevalence of sex-role stereotyping at this young age. By this agethe children already believe that 'boys are mechanically and scientifically inclined while girls excel at reading and language' (Sears, Jacklin, and Tittle in Rich and Phillips, p. 116). This division is reinforced by the division of boys and girls into wood shop and home economics. Vocational

education is also sex segregated, with boys studying mechanical skills and girls studying homemaker and secretarial skills.

The only significant statistical differences in the number of Carnegie units ("a standard measurement that represents one credit for the completion of a 1-year course") earned by high school students are found in the areas of foreign language, business, and trade and industry. In 1982 female students earned an average of 1.2 credits in foreign language compared to males' 0.8 credits; females earned an average of 2.4 credits in business to the males' 1.0; and females earned 0.2 credits in trade and industry to the males' 1.6 (Center for Education Statistics, p. 96, See Appendix 7). Girls also earned slightly more credits in English and the arts and slightly fewer in mathematics (p. 96).

Further segregation is experienced in physical education classes, where "males are expected to be athletic superstars" and girls nothing. "These expectations are. . . reinforced with substantially different financial allocations to boys' and girls' physical education programs (Saario, Jacklin, and Tittle in Rich and Phillips, p. 116)."

The curricula which are followed by the schools also play a very important part in the socialization of children. As one researcher expressed it,

> History is taught literally in terms of 'man's' development and in the very structure of the language teachers use is inherent the idea of man's superiority over woman. . . . Language creates and reflects our reality, and it is hard to ignore the fact that English as currently used implies that females are, at best, derivative, and at worst, slightly less than human (Harrison, p. 39).

The teacher is, of course, an integral part of the curriculum, as is the grading system adopted by the teacher. Several studies have examined the role of sex-role stereotyping in grading. In a 1978 study, Kathy Clarricoates found that girls were better in reading and writing, but that these were areas which the teachers did not value, and thus this proficiency was discounted as a sign of success. Furthermore, the girls' proficiency gave the teachers a reason for giving more attention to the boys--since they "needed" the help--causing a "no-win" situation (Cline and Spender, p. 56).

A 1984 study by Spender illustrated that teachers are more likely to give higher marks to boys (in all subjects) simply because they were boys. In her study, teachers used "blind" marking, with assignments turned in with codes rather than names. Teachers who didn't know the identity, including sex, of the students more evenly distributed the grades (p. 57).

The results of sex role stereotyping were shown in a California study which tracked the school careers of 140 bright youngsters, and which showed an alarming downward curve in I.Q. for the girls upon reaching adolescence. It was found that these girls believed that "'it isn't smart for a girl to be smart.' In a very real sense, these girls were arrested in their mental growth, at age fourteen or fifteen, by conformity to the feminine image (Friedan, p. 174)."

Another illustration of the results of sex role stereotyping can be seen in the way students themselves view their grades. Sheila Tobias (1978) found that students' interpretations of

their grades differed by sex. Girls who received a good grade felt they were "lucky" and that it was an over-rated assessment of their abilities; while boys who received a good grade felt they were deserving and that it was an accurate assessment of their abilities. Girls who received a bad grade reacted as if their "true" level of incompetence had been discovered; while boys who had received a bad grade perceived the grade as "bad luck" and vowed to do better the next time (Cline and Spender, p. 56).

The emphasis on girls' taking home economics courses is the more explicit way that girls are taught to be subordinate to men. There is a trend to include boys in home economics today, especially at the junior high school level. However, the emphasis on girls' continuing taking the course is still very much prevalent. As one home economics teachers put it, "No matter how hard we try, home economics can still be used to reinforce women's subordination. It can still be used as the subject that teaches women how to look after men (p. 43)." One home economics teacher nearly resigned her position because she felt very strongly about the curriculum. She felt it was wrong to emphasize grooming and fashion for girls (to catch a boy) and not be allowed to teach the same ideas to boys (a waste of their time (p. 44).

The role of high school guidance counselors cannot be underestimated in the socialization of girls. Many girls find themselves being advised to consider what they will do with their (imaginary, possible, future) children when they express a desire

to go into a non-traditional, serious occupation. ". . . a girl is in the absurb position of suspending her own plans in the interest of some unknown and future man (p. 45)."

One high school girl reported wanting to be an architect, but was advised against it by her counselor because, "women are so rare in that profession." She persisted by applying to two universities with well-known architectural programs and was accepted by both. Her counselor continued to try to discourage her, saying she would, "spend her life in a drafting room," and advised she attend a local junior college where she could learn what she needed to be married (Friedan, pp. 161-162).

Girls are also subjected to scare tactics if they indicate an interest in a male-dominated field--they will become "old maids." It is very difficult for most adolescent girls to resist this kind of pressure (Cline and Spender, p. 49). "It depends," becomes the answer given by many girls when asked what they hope to be doing with their future, meaning it depends on the young man they will be with and on the balance they will be able to achieve between a better career and being attractive to the opposite sex (p. 50). In short,

> Even when it is virtually certain that most women will no longer spend their lives as full-time housewives, the sex-directed educators have told them not to plan for a career for fear of hampering their sexual adjustment (Friedan, p. 167).

Many girls never make it as far as the counselor's office. They quickly learn that, if they care at all about their popularity with the boys, academic achievement is not the way to earn it. Boys and men prefer girls and women who are not smart.

"Physical prowess aside, 'intelligence' is the area of greatest possible threat to the male ego (Cline and Spender, p. 48)." Girls who, in younger years did well in and liked math and science, drop drastically in proficiency upon reaching adolescence. Thus, the boys look better trained for careers where those subjects are important. Girls actually conceal their competence, fail these subjects, or just abandon pursuing them (p. 52).

The sad statistics confirm the effectiveness of these counseling techniques. In 1954, "Of the brightest forty percent of United States high-school graduates, only half went on to college; of the half who stopped, two out of three were girls (Friedan, p. 161)." Expressed another way, 15 percent of the boys did not continue their education, but 36 percent of the girls did not go on (p. 162). As recently as 1975, fewer girls entered college than boys. However, beginning in 1976, more girls than boys entered college, and this trend continues through 1985, the most recent year for which statistics are available (Center for Education Statistics, p. 130, See Appendix B).

In one analysis of the effect of counseling on high school students, the Carnegie Commission found that interest and aptitude tests treated boys and girls differently through the use of language. As a result of the Commission's protests, the Strong Vocational Interest Blank was changed in 1972. Second, the Commission found that high school girls were discouraged "from aspiring to traditionally male occupations and (were) even told not to plan for a career with long training" because they

would have to subordinate their work to marriage and child rearing. Third, the Commission charged that high school boys were counseled to pursue math longer that girls because math would be needed for traditionally male jobs. Fourth, the Commission found that girls from working-class families were more likely to be counseled into vocational education rather than into college preparatory programs (pp. 44-45).

An accurate assessment of the situation was presented in a report by the U. S. Department of Labor:

> Despite affirmative action programs and publicity on the career success of women in stereotypical male positions, most women have not changed their career aspirations. They continue to plan careers in traditionally female positions. As a result, they continue to occupy lower paying positions. . . . It is essential that young women be encouraged to obtain the job skills needed to work more productively and continuously than they envision as teenagers (p. iii).

This conclusion was reached based on the following statistics: 35 percent of white women and more than 50 percent of black wome returned to work within five months of childbirth in 1978 (p. iii). Thus, a young girl who indicates to her high school counselor that she plans to marry needs to be informed of these statistics and told, "that this is likely to be even more true the future (Carnegie Commission, p. 47)."

> Concerned adults can help convince young girls that in all likelihood they will work for most of their adult lives. Children must realize that economic self-sufficiency is a key to survival and that the work they do will determine much about how they live (Shapiro, Kramer, and Hunerberg, p. 106).

Vetter's study of career guidance materials uncovered another aspect of socialization which leads girls into

traditional feminine fields. All career guidance materials intended for high school use and published from 1970 to 1974 were found to be stereotyped. Included in this study were more than 9,500 pages of text and 1,850 illustrations in more than 200 materials (p. ix). Specifically, 75 percent of the illustrations which showed workers of only one sex showed males. When proper names were used, 75 percent were male. The importance of these facts must be stressed by counselors working with teenage girls, for,

> If the information high school students receive is accurate and if the number of options they have are clearly presented, they will be better able to make career decisions based on individual interests, abilities and concerns, rather than on stereotypic role expectations (p. 1).

Vetter's study also found that the career materials did not adequately discuss the differences that women experience in the work place. For example, only 36 percent of the materials mentioned the fact that women experience different career patterns; only 30 percent mentioned the existence of working mothers; and only 14 percent mentioned the fact that women are compensated differently than men (p. ix).

Changes in curriculum are important, as are changes in the teachers' strategies; but the sum total of all aspects of the educational process must be modified to include attitudes of all faculty members, including vocational instructors and coaches.

> The curriculum, the social climate, and the behavior expected of students in school settings all serve to reinforce traditional sex roles. Young men's futures are taken more seriously than young women's; young men in high school often are encouraged to achieve not only

> in academic studies but also in vocational and athletic programs as well (Murphey and others in Rich and Phillips, p. 129).

This is an emphasis which girls do not receive. Girls are not encouraged to excel in subjects which are valued; furthermore, they are discouraged if they do make an effort in a traditionally male-dominated course.

A 1975-76 study by Elizabeth Fennema of Wisconsin high school students found that fewer females than males took math electives in high school. This finding was also substantiated at the college level by Lucy Sells at the University of California at Berkeley. Sells found that 57 percent of the males had taken trigonometry or some other higher-level math in high school. Only eight percent of the females had done so. Thus, 92 percent of the females had eliminated themselves from majoring in fields requiring higher-level math (Brush in Rich and Phillips, pp. 252-53).

It was the recommendation of the Carnegie Commission that high school girls should keep their options open and "should be encouraged to continue the study of mathematics throughout high school in view of the growing number of occupations in which knowledge of mathematics is important (p. 48). This recommendation is reinforced by another finding of the Carnegie Commission concerning girls who do continue their studies of math in high school:

> . . .girls who do continue mathematics in high school evidently tend to be those with superior mathematical ability, for there is a consistent tendency for girls to receive better high school grades than boys in mathematics as well as in other subjects (p. 46).

The concern over sexism in the schools, then, can be summarized thus: boys are encouraged to study and do well in math and science; girls are discouraged from excelling in these subjects. Boys continue to study math and science in high school, which enables them to choose more technical areas of concentration in college; girls do not elect math and science courses in high school--instead they opt for the more traditional home economics and secretarial sciences. Boys earn Bachelor's degrees in science and technical areas, making them eligible for higher-paying careers; girls earn Bachelor's degrees in liberal arts, making them eligible for teaching, nursing, and secretarial jobs--not careers.

The net result of not studying math in college is lower earnings. In a 1979 study, Brush found engineering graduates were offered an average salary of $18,372, while humanities and social science graduates were offered $11,810 (in Rich and Phillips, p. 253).

The solution to this problem will be long in coming, and will be multi-faceted. Some researchers have proposed solutions in their reports. Brush, for example, makes these suggestions:

> 1. . . . schools (must) recognize the importance of early identification of talented girls and the fact that their earlly placement in accelerated mathematics classes will encourage them to continue.
> 2. . . . girls need more information on the practical uses of mathematics for careers. They need to be encouraged to keep their options open by taking as much mathematics as possible. . . . Courses (should) include more applied mathematics. It may also be useful for schools to provide girls with the opportunity to meet women who have careers requiring mathematical skills.
> 3. . . . explicit encouragement by teachers is more important for girls than for boys. Teachers can

> convince talented girls to take advanced courses and can help them to overcome a lack of self-confidence (in Rich and Phillips, pp. 254-55).

The Carnegie Commission's report made a similar conclusion: "We favor at the precollege level particularly: more mathematical training for girls (and) counseling that is free of outmoded conceptions of male and female careers (p. 4)."

In a study done of the top managers throughout the United States, Morrison found that 40 percent were from Barnard, Bryn Mawr, Columbia, Cornell, Harvard, Hunter, MIT, Smith, Stanford, Wellesley, Wharton, or Yale (Morrison and others, p. 129). The admissions standards for these colleges often stipulate vigorous mathematical training, making it difficult for women who have not elected math courses in high school to be admitted. However,

> . . . at some of these schools, there have been only a few women competing with men. The women who have come through that experience are often recognized not only for academic rigor but also for the fortitude and flexibility needed to hold their own (p. 129).

In addition, the content of a woman's degree is important when judging her success in the business world. Math, science, and computers are perceived as demanding fields and therefore result in the women's gaining respect in traditionally male fields (p. 130).

Although one might think that sex-role stereotyping and socialization ends with one's graduation from high school, this is not really the case. The continuation of such treatment continues into college and graduate school, and has been well-documented. One woman who was a lecturer in teacher education told of how women defer to men at the college level:

> We've got plenty of courses where there are more women than men in them, but the women still defer to the men. They see the staff doing it; they do it; the kids they teach do it. There's no end to it (Cline and Spender, p. 62).

Many women reported young women who were training to be teachers being pressured into deferring to the male staff (educators and tutors) and granting sexual favors because they lacked the confidence to challenge sexual harassment and to believe they could do the work (Cline and Spender, p. 64).

According to the Carnegie Commission, other factors which affect the status of academic women are,

> 1. The roles for females presented to them in early life.
> 2. The comparatively greater absence of "role models" for women as they rise higher in academic life. Some and probably many college women clearly perform with greater distinction when they study under faculties that include women.
> 3. Prejudice and male monopolies (p. 3).

Feldman's study pointed out that even in graduate school, sex role stereotypes persist. She points out that many women earn their advanced degrees in education, social sciences, and library science--"acceptable" female studies. Segregation exists even in graduate school (pp. xi-xii). As Dr. Feldman explains,

> In the United States, women enter professions such as nursing and teaching, where they can best apply the "feminine" characteristics of "expressiveness and people-orientation," and they do not enter professions such as law or engineering, which require "masculine" characteristics such as "coolness, detachment, analytic objectivity, or object orientation (p. 37).

A 1972 summary of Bureau of Adult, Vocational and Technical Education data shows that many areas of study are highly segregated: 93 percent of the students enrolled in consumer

education/homemaking were female; 95 percent of the students enrolled in vocation agriculture courses were male; 92 percent of the students enrolled in technical fields--metallurgy, engineering, oceanography, and police science--were male; 75 percent of the students studying office occupations were female; 89 percent of those studying trades/industrial occupations were male (Saario, Jacklin, and Tittle in Rich and Phillips, p. 117).

Fortunately for women, many college admissions officials are becoming aware of the problems of sex segregation in careers and are beginning to actively recruit women into the traditionally-male fields ranging from dentistry to physics. One example is the University of Oklahoma's Project New Avenues, which gives motivation, incentive, and help to women in physics in the form of remedial classes, encouragement, and scholarships (p. 38).

Feldman's study surveyed undergraduate students at the University of California at Berkeley, San Francisco State College, the University of Arizona, Southern Methodist University, and the University of Wisconsin. Respondents were asked to rank 45 academic fields according to how they perceived them--masculine, neutral, or feminine (pp. 39-41). The fields which were perceived as masculine (from most to least) were:

Electrical engineering
Mechanical engineering
Civil engineering
Chemical engineering
Agriculture-forestry
Law
Physics
Dentistry
Business
Architecture
Geology
Chemistry

Medicine
Mathematics
Biochemistry
Economics
Political Science
Educational administration (pp. 40-41)

The fields which were perceived as neutral (ranging from masculine to feminine) were:

Bacteriology
Physiology
Zoology
Philosophy
History
Botany
Geography
Psychology
Journalism
Anthropology
Physical education and health education
German
Sociology (p. 41)

The field which were perceived as feminine (ranging from least to most feminine) were:

Educational psychology
Speech
Spanish
Art
Dramatics
Music
Secondary Education
Social Work
English
French
Library Science
Elementary Education
Nursing
Home economics (p. 41)

In this study, the fields which were perceived as being female-dominated had a stronger teaching (versus research) orientation and had lower prestige, power, and privilege. The people working in these fields also had lower self-image--they were less likely to view themselves as intellectuals, scholars,

or scientists. "The benefits are more likely to be intrinsic--teaching is its own reward (p. 60)."

In those fields where the students plan to teach college, women are more likely to plan to teach at a junior college than men (16 percent of the women and only six percent of the men). Only 12 percent of the women versus 85 percent of the men indicated plans to teach at the college or university level (p. 77).

To summarize Feldman's study,

> . . . women who aspire toward university careers are more qualified than their male counterparts. Those who are not plan to end up in junior colleges. On the other hand, men opt for university academic careers whatever their qualifications (p. 79).

The reasons why women experience such inequality in their higher education careers could include

> behavior differences determined by sex. . . . the result of differential socialization, based largely on stereotypes of the sex roles of males and females. . . . Until differential socialization and stereotypes disappear, patterns of inequality will continue. . . . Fields that voluntarily admit women and men in equal numbers treat women more equally at all levels of education. If other fields begin to keep a natural balance between women and men, it seems likely that sex-based inequality will lesson. . . . Change must come at all levels of education (pp. 138-39).

Another recent study (Komarovsky, 1979) analyzed attitudes of entering freshmen concerning sex differences. This study found that students believe there is little psychological difference between males and females in

emotionality	artistic inclination	pettiness
sensitivity	straightforwardness	deviousness
superficiality	aggressiveness	insecurity

ambition	high moral character	sympathetic
originality	reasoning ability	aggressiveness
artificiality	proneness to taking offense (pp. 86-87)	

The results of this study included some interesting progress in the area of students' attitudes. The students were asked to rate the validity of 16 statements which stressed sex differences. Only five of the 16 statements were upheld by ten percent or more of the respondents, and 11 of the 16 statements were upheld by less than ten percent. Only one statement, "Women are more emotional than men," was upheld by more than 50 percent of the respondents. The respondents also were quite sure of their perceptions, evidenced by the fact that only 393 of the 3,703 responses were "uncertain (p. 87)."

The respondents themselves were tested by Komarovsky to determine how likely they were to hold stereotypical attitudes. She found that 34 percent (n=77) of the students were "stereotypers (likely to believe stereotypical statements such as the one above)," and 66 percent (n=147) of the respondents were "nonstereotypers." She concluded this section of her study thus: ". . . freshmen in the current study rejected the negative stereotyping of women (p. 88)."

Komarovsky also analyzed the female students' attitudes toward work and marriage, and she compared the results from her study to one done 1943. The most striking changes in attitude included the preference to work after marriage and the preference to continue working after marriage with minimal interruption in workforce participation for childrearing. In 1943, 61 percent of the women surveyed expressed a preference not to work after

marriage, compared with only five percent in 1979. In 1943, ten percent of the women surveyed preferred to continue working after marriage and childbearing with minimal interruption; and in 1979 this response netted 48 percent of the respondents (p. 91).

Despite these statistics which indicate a change in attitude toward work, there is an alarming complacency among college women:

> The majority of entering freshmen simply saw no need for a collective effort at social reform. Many referred to their good fortune of living at a time when women have all options open to them. The freshmen were optimistic about their chances to attain their goals once they clarified them. . . . Of course, they had not as yet experienced the problems confronting women in the workplace or in marriage. Apparently neither their own observation of their families nor the mass media reports of the women's movement sufficed to offset the individualistic ethos of our society: "A woman can attain her goals not by marching in demonstrations but by proving her worth in any endeavor she chooses (pp. 97-98)."

Komarovsky also found a correlation between perception of psychological sex differences and attitudes toward sex roles. Of the women who were stereotypers, 64 percent felt women should fill traditional sex roles, while only 29 percent of the women identified as nonstereotypers believed women should fill traditional roles (p. 100).

Another aspect of this same study was career salience and perception of psychological sex differences. Career students, those with a definite plan for their careers, and noncareer students, those with low career aspirations, were rated on their view of women. The relationship was proportionately inverse: 64 percent of the career students had a positive view of women; 64

percent of the noncareer students had a negative view of women (p. 104). Furthermore, there is a correlation between career salience and attitudes toward sex roles: only 27 percent of the career women would opt for traditional sex roles, while 65 percent of the noncareer women would do the same (p. 104).

As stated earlier, many of the incoming freshmen stated their good fortune of living in an age of equality. The extent of this belief was tested by Komarovsky. She concluded,

> Overall, in interviews the freshmen exhibited ignorance of the world of work, the range of possible occupations, and the nature of each. In view of this ignorance, it is not surprising that their intended occupational goals were so often based on fantasy (p. 220).

The same college freshmen who were so naive concerning the options for their careers soon became more cognizant of the realities of sexism. Open discussions of sexism made many women aware that their experiences were not unique. This held true for all groups. "Thus, consciousness-raising both preceded and was strengthened by individual experiences of sexism (p. 185)."

One case history reported by Komarovsky concerned a college sophomore who reported breaking up with her boyfriend after over three years because she experienced an "awakening" and realized their differences. As the author states,

> The case illustrates a young woman's increased striving for equality. Specifically, this entailed her growing refusal to subordinate, as a matter of course, her occupational plans to those of her boyfriend; a heightened importance attached to studying and other activities to further her own goals, even when these conflicted with his convenience; and a demand to be taken more seriously in intellectual discussions (p. 235).

What has to be done--at all levels of education--must include changing attitudes as well as practical methods, texts, and tests. As Betty Friedan said, "Education itself can help provide that new image--and the spark in girls to create their own--as soon as it stops compromising and temporizing with the old image of 'Woman's role' (p. 368)." Women don't need home economics,

> but they must study science--to discover in science; study the thought of the past--to create new thought; study society--to pioneer in society. . . . Women must be educated to a new integration of roles. The more they are encouraged to make that new life plan--integrating a serious, lifelong commitment to society with marriage and motherhood--the less conflicts and unnecessary frustrations they will feel as wives and mothers, and the less their daughters will make mistaken choices for lack of a full image of woman's identity (p. 368).

Another part of combatting sex-role stereotyping, according to Friedan, must be active recruitment of and helping married female students with children; as well as hiring faculty members who can serve as role models because they have successfully

> combined marriage and motherhood with the life of the mind--even if it means concessions for pregnancies or breaking the old rule about hiring the wife of the male associate professor who has her own perfectly respectable M.A. or Ph.D (p. 367).

These conclusions are based on the cold, hard statistics of women in college. During the 1960s, if one had traced the history of female enrollment in post-secondary institutions (as did Betty Friedan), one would have found an alarming pattern. In 1870, 21 percent of the students were female; in 1920, 47 percent were women; but in 958, only 35.2 percent were female (p. 425).

However, since 1976, these sad numbers have experienced a dramatic turnaround. In 1976 there were more women enrolled as first-time freshmen than men for the first time in history. The following year the statistics reflected more women than men enrolled as first-time freshmen in both full-time and part-time statuses (Center for Education Statistics, p. 130, See Appendix B). The number and percentage of female students has continued to increase through 1985 (the latest year for which statistics are available), when women constituted 54 percent of the first-time freshmen enrollment (p. 130).

Enrollment and graduation being two entirely separate issues, one must analyze the number of degrees awarded at the baccheloreate level to truly understand the trends in gender segregation in education. As of 1980, most of the fields of study still hold to gender segregation. Males earn 50.2 percent of all Bachelor's degrees as well as the majority of the degrees in agriculture, architecture, business and management, computer and information sciences, engineering, mathematics, military sciences, and physical sciences. Females earn the majority of the Bachelor's degrees in area studies, communications, education (75 percent), fine and applied arts, foreign language, health professions, home economics, letters, and library science (p. 195, See Appendix I).

More alarming is the decline in female participation in higher educational programs. In 1920, 16 percent of the Ph.D.s were female; in 1940 this percentage was down to 13 percent; in 1956 it was less than 10 percent (Friedan, p. 425). Of the young

people capable of attending college, only 25 percent of the women versus 50 percent of the men actually attend. While one of every 30 men capable of earning a Ph.D. actually do so, only one of every 300 women do so (p. 425). Tracing the number of doctoral degrees awarded since 1869, one finds that there have always been more degrees awarded to males than to females. However, the percentage of doctoral degrees granted to males has been dropping steadily, and the number of degrees granted to males has been dropping since 1972. At the turn of the century, 93 percent of all doctoral degrees were awarded to men; in 1960, 89 percent; in in 1970, 85 percent; in 1980, 68 percent; and in 1987, (projected) 63 percent (Center for Education Statistics, p. 172, See Appendix 9).

Of course, the picture of sex-role segregation continues when one analyzes the areas of study for many of these doctoral degrees. Males still outnumber females in the traditionally male areas of agriculture, architecture, business and management, computer and information sciences, engineering (by a ratio of better than 25:1), law, mathematics, parks and recreation, physical sciences, protective services, and the social sciences. Women earn more doctoral degrees in general education, home economics, foreign languages, allied health and health services, and letters (pp. 174-81, See Appendix 10).

Therefore, one may detect a pattern here. Although women are attending college more, are earning more and higher degrees, th majority of those degrees are still in traditionally acceptable female areas. Whether this will continue remains to

be seen and bears further research. I would propose that the numbers indicate a trend toward better equality.

CONCLUSION

It can be concluded from the foregoing discussion that sexism is still prevalent in schools. My own conclusion is that it is getting better, but that it will take time to reach true equality. Of course, the best conclusion to any analysis of the problem of sexism in schools is that attitudes must change. This change in attitude must begin with educators before it can become evident in our children. Of course,

> changing children's attitudes about careers will not guarantee that women will be treated more equitably in the future, not that they will find well-paid, satisfying work. But altered perceptions about work may result in their being better prepared and better able to compete in the job market (Shapiro, Kramer, and Hunerberg, pp. 105-106).

One thought presented by some militant feminists is that the only way to achieve sexual equality in the workplace is through litigation. However, "Little has as yet been accomplished via litigation toward achieving equal opportunity for women in education (Berger, p. 45)." The litigation which has been successful has had far-reaching side-effects, some negative.

> Although many substantive gains have been achieved through the litigation process, the results discussed previously indicate an unwillingness on the part of the courts to accommodate the law to the tremendous changes that have taken place in the structure of work and family life. It is also apparent that there are still large groups of women on whose lives the litigation effort has not yet had much of an impact (p. 50).

The notion that litigation does not reach the poor women of our society is one idea that must be dealt with. The most appropriate litigative effort should involve poor women as

plaintiffs, mainly to call attention to their plight, since judges are only familiar with the women in their own personal lives--their wives, daughters, and so forth--who are all middle- and upper-class women (p. 57). Berger's conclusion is that "the litigative effort must go forward. . . . Litigation in conjunction with other lines of attack is an important tool in bringing about change (p. 67)."

Furthermore, the statistics presented earlier also indicate that the litigation which has already transpired has had no effect on the wages of women relative to men. Comparable worth aside, women are still not paid equally with men. "No way has as yet been found to deal with the issue of equal pay for comparable worth (p. 51).

The litigation effort has dropped off over the last few years also because, as "one litigator. . . explain(ed) . . . the optimists are still looking at the wake left by the advocates' efforts, rather than at the leading edge of what is happening now (Berger, p. 5)."

The last drawback to litigation as a solution to sexist discrimination is that it is time-consuming, emotionally draining on the litigant, and potentially very expensive. A legislative attack is potentially more efficient--probably quicker and cheaper and having the advantage of not spotlighting a single woman as litigation would. Of course the drawback to legislation is that it is meaningless without enforcement. The present lack of enthusiasm on the part of law-enforcement officials could explain the current litigation effort (p. 52).

As Berger has stated,

> Not only have the courts drawn back when a favorable decision for women would mean a fundamental change in the way business is done in the United States, but there are indications that the federal courts are reacting more unfavorably now than they did when the litigation effort first began (p. 50).

The lack of enthusiasm includes lack of enforcement of the Equal Pay Act (EPA). This problem has emphasized that "it is difficult to deal legislatively and judicially with wage discrimination, as contrasted with job discrimination (Fogel, p. 121)." One implication of this statement is that it would be wiser "to concentrate antidiscrimination efforts on equality of job access for women and other groups (p. 122)" rather than on pay equity, at least for the present. Later, pay equity would naturally evolve (p. 123). Of course, the only way women can ever hope to have equal access to all jobs is if they are qualified for them, which must include more in-depth training in mathematics and science.

The major attempt at legislating relative equality in the United States dissipated when it failed to receive the necessary ratification votes in time. The Equal Rights Amendment (ERA) reads simply:

> Section 1. Equality of rights under the law shall not be denied or abridged by the United States or by any State on account of sex.
> Section 2. The Congress shall have the power to enforce, by appropriate legislation, the provisions of this article.
> Section 3. This amendment shall take effect two years after the date of ratification (Delsman, p. 1)

The proponents of the ERA felt it was needed as written at that time due to the fact that "both the Fifth and 14th Amendments were adopted at times when women did not have the vote and when most people accepted the secondary status of women (p. 9)." Thus, the main thrust of those amendments simply did not cover the situation of women. ". . . that is the basis for court decisions which discriminate against women (p. 9)."

The one advantage of litigation is that its threat could inspire some businesses to improve their climate.

> There seems to be a consensus that the threat of lawsuits has caused some women to be taken more seriously. . . . Even the unsuccessful lawsuit may create a positive ripple effect, because one of the messages that gets conveyed is the enormous cost to the defendant in time and money. . . (p. 55).

Another option that has been suggested for improving the status of women in business is organization into unions. Although there are many people who point to case histories where unions have helped women, for the most part they have been ineffective. Furthermore, "Despite the large and growing number of women who belong to unions, women are almost nonexistent in the governing hierarchies (Berger, p. 51)." Therefore, once again, women are not controlling their own destiny.

The possibility for improvement in the situation is debatable, depending on who is consulted. One expert claims that we have replaced the past referrals to women's physical weaknesses with the current, trendier referrals, such as "hormones and pre-menstrual tension (Cline and Spender, p. 49)." Some feminist sociobiologists "call for public education and

reform of sexist policies, laws, and practices" without trying to "imply superiority or inferiority" of men or women (Bleier, p. 12). This approach also includes changing the attitudes of people's early childhood socialization which is reinforced by schools. As Bleier has said,

> In the absence of clear paths to truth and social justice, the one hope for bringing about change for the better lies in the capacities of the human brain to make it possible to break out of the cultural constraints that some human beings have constructed to the detriment of others (p. 13).

Be this as it may, I feel that the statistics speak for themselves. An analysis of the statistics published by the Center for Education Statistics shows some definitely hopeful trends for the future of sexual equality in schools and the workplace (See Appendix).

According to Shapiro, Kramer, and Hunerberg, there are specific steps which can and should be taken to overcome sexism in the schools:

> -Help both girls and boys recognize the importance of work in their lives.
> -Work to overcome the effects of sex-role stereotyping on attitudes about careers.
> -Help children learn that preparation is necessary for the many work opportunities that are available to them.
> -Help children respect work of all kinds--both inside and outside the home (p. 107).

As these authors concluded, it is crucial that our children be helped to see the connection between their present abilities and any possible occupations, and they must become cognizant of the need to continue preparing for these future jobs (p. 111). Girls who grew up with the "Cinderella Myth" need to know more about

career training and courses needed to remain competitive in the business world. Mathematics courses are avoided by girls because the girls believe theses courses are not necessary. Boys study mathematics because they are more aware of the necessity for the subject in a variety of career options (p. 112).

Another author, Dale Spender, stresses another avenue for overcoming sexism. She believes that one solution can be found in the nature of women, which is cooperative. According to Spender, women have a tradition of cooperation and mutual support which can be used to their advantage (p. 135). As she explains,

> . . . consciousness-raising groups. . . were not self-consciously devised by women and adopted, but are merely an extension of the co-operative turn-taking that women normally engage in. Women did not think out an egalitarian and considerate arrangement and then try and implement it, rather they found themselves engaged in this form of talk and attempted to describe and analyse it (p. 136). . . . Women have had and do have the resources of each other despite the fact that such resources are frequently denied or distorted (p. 137).

This is the central idea throughout all of the research. Women must decide to work to end sexism and must work together to accomplish this end. Because the majority of the teachers are women, this is not that difficult of a task. Beginning with new teachers, we must strive to change our own attitudes--in the name of fairness--and end sexism in schools.

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Median annual income of year-round full-time workers 25 years old and over, by years of school completed and sex: United States, 1970 to 1985

Sex and year	Total	Elementary school		High school		College		
		Less than 8 years	8 years	1 to 3 years	4 years	1 to 3 years	4 years	5 years or more
1	2	3	4	5	6	7	8	9
Men								
1970	$9,521	$6,043	$7,535	$8,514	$9,567	$11,183	$13,264	$14,747
1971	10,038	6,310	7,838	8,945	9,996	11,701	13,730	15,300
1972	11,148	7,042	8,636	9,462	11,073	12,428	14,879	16,877
1973	12,088	7,521	9,406	10,401	12,017	13,090	15,503	17,726
1974	12,786	7,912	9,891	11,225	12,642	13,718	16,240	18,214
1975	13,821	8,647	10,600	11,511	13,542	14,989	17,477	19,658
1976	14,732	8,991	11,312	12,301	14,295	15,514	18,236	20,597
1977	15,726	9,419	12,083	13,120	15,434	16,235	19,603	21,941
1978	16,882	10,474	12,965	14,199	16,396	17,411	20,941	23,578
1979	18,711	10,993	14,454	15,198	18,100	19,367	22,406	25,860
1980	20,297	11,753	14,674	16,101	19,469	20,909	24,311	27,690
1981	21,689	12,866	16,084	16,938	20,598	22,565	26,394	30,434
1982	22,857	12,386	16,376	17,496	21,344	23,633	28,030	32,325
1983	23,891	14,093	16,438	17,685	21,823	24,613	29,892	34,643
1984	25,497	14,624	16,812	19,120	23,269	25,831	31,487	36,836
1985	26,365	14,766	18,645	18,881	23,853	26,960	32,822	39,335
Women								
1970	5,616	3,798	4,181	4,655	5,580	6,604	8,156	9,581
1971	5,872	3,946	4,400	4,889	5,808	6,815	8,451	10,581
1972	6,331	4,221	4,784	5,253	6,166	7,020	8,736	11,036
1973	6,791	4,369	5,135	5,513	6,623	7,593	9,057	11,340
1974	7,370	5,022	5,606	5,919	7,150	8,072	9,523	11,790
1975	8,117	5,109	5,691	6,355	7,777	9,126	10,349	13,138
1976	8,728	5,644	6,433	6,800	8,377	9,475	11,010	13,569
1977	9,257	6,074	6,564	7,387	8,894	10,157	11,605	14,338
1978	10,121	6,648	7,489	7,996	9,769	10,634	12,347	15,310
1979	11,071	7,414	7,788	8,555	10,513	11,854	13,441	16,693
1980	12,156	7,742	8,857	9,676	11,537	12,954	15,143	18,100
1981	13,259	8,419	9,723	10,043	12,332	14,343	16,322	20,148
1982	14,477	8,424	10,112	10,661	13,240	15,594	17,405	21,449
1983	15,292	9,385	10,337	11,131	13,787	16,536	18,452	22,877
1984	16,169	9,828	10,848	11,843	14,569	17,007	20,257	25,076
1985	17,124	9,736	11,377	11,836	15,481	17,989	21,389	25,928

SOURCE U.S. Department of Commerce, Bureau of the Census. *Current Population Reports*, Series P-60, *Money Income of Families and Persons in the United States*, various years; and *Money Income and Poverty Status of Families and Persons in the United States*, Series P-60, No. 154. (This table was prepared October 1986.)

Total annual money income of persons 25 years old and over,[1] by years of school completed, sex, and age: United States, 1984

Sex, income, and age	Total	Years of school completed											Median school years completed
		Elementary school			High school			College					
		Total	Less than 8	8	Total	1 to 3	4	Total	1 to 3	4 or more			
										Total	4	5 or more	
	2	3	4	5	6	7	8	9	10	11	12	13	14
	Number, in thousands												
Men													
Total	67,756	9,576	5,338	4,238	31,335	7,783	23,552	26,845	11,164	15,682	8,499	7,183	12.7
With income	66,612	9,302	5,144	4,158	30,736	7,540	23,196	26,574	11,005	15,570	8,451	7,119	12.7
	Percentage distribution of men with income												
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	12.7
$1 to $1,999 or less	3.3	4.5	5.1	3.9	3.6	4.3	3.4	2.4	2.7	2.2	1.9	2.5	12.4
$2,000 to $2,999	1.7	4.1	5.0	2.9	1.6	2.5	1.3	0.9	1.0	0.8	0.9	0.7	11.8
$3,000 to $3,999	2.4	7.9	10.1	5.1	2.0	3.4	1.6	0.9	1.2	0.7	0.8	0.6	9.8
$4,000 to $4,999	2.7	8.5	9.7	7.0	2.4	3.7	1.9	1.1	1.6	0.8	0.9	0.8	10.3
$5,000 to $5,999	3.0	7.8	8.7	6.6	2.8	4.7	2.2	1.5	2.0	1.2	1.1	1.3	11.3
$6,000 to $6,999	3.0	7.2	7.9	6.3	3.1	4.6	2.6	1.4	2.1	0.9	0.9	0.8	11.8
$7,000 to $8,499	4.8	9.5	9.7	9.4	5.3	8.4	4.3	2.4	3.4	1.8	2.0	1.6	12.1
$8,500 to $9,999	3.8	6.7	6.4	7.2	4.3	6.0	3.7	2.1	2.8	1.6	1.8	1.3	12.2
$10,000 to $12,499	8.3	11.8	11.4	12.4	9.7	12.2	8.9	5.6	7.7	4.1	4.3	3.7	12.4
$12,500 to $14,999	6.4	7.6	6.5	8.9	7.6	8.3	7.4	4.5	5.9	3.6	4.3	2.8	12.5
$15,000 to $17,499	7.2	6.9	6.0	8.1	8.5	7.9	8.7	5.8	7.8	4.4	5.3	3.4	12.6
$17,500 to $19,999	6.2	4.1	3.7	4.6	7.2	6.7	7.4	5.8	6.8	5.1	5.8	4.2	12.7
$20,000 to $24,999	11.9	5.3	4.1	6.8	13.4	9.9	14.5	12.4	14.8	10.7	11.6	9.6	12.8
$25,000 to $29,999	10.1	3.0	2.1	4.0	10.7	6.9	11.9	12.1	12.7	11.6	12.5	10.5	12.9
$30,000 to $34,999	8.0	2.5	1.7	3.6	7.5	4.9	8.4	10.4	10.3	10.4	10.7	10.1	13.3
$35,000 to $49,999	10.6	1.7	1.3	2.2	7.7	4.3	8.8	17.2	12.2	20.7	19.8	21.9	15.3
$50,000 to $74,999	4.4	0.5	0.3	0.8	1.8	0.8	2.1	8.9	3.9	12.4	10.5	14.6	16.5
$75,000 and over	2.2	0.2	0.2	0.2	0.7	0.4	0.8	4.6	1.0	7.2	5.1	9.7	16.9
	Median income												
All ages, 25 and over	$18,902	$8,604	$7,530	$10,325	$17,210	$12,529	$18,825	$26,096	$21,378	$30,298	$28,206	$32,891	...
25 to 34 years	18,093	8,632	8,079	9,744	15,995	10,898	17,030	21,393	19,399	23,687	23,522	24,001	...
35 to 44 years	24,566	11,195	10,210	13,276	20,763	15,524	21,942	30,220	24,995	34,185	32,066	36,036	...
45 to 54 years	24,589	11,672	10,078	14,805	21,612	17,147	23,273	34,077	27,059	39,026	38,135	39,981	
55 to 64 years	19,527	10,536	9,378	12,429	18,764	15,421	20,228	30,764	23,481	37,021	35,243	39,580	
65 years and over	10,450	7,269	6,441	8,449	11,374	9,734	12,617	17,824	14,137	21,007	20,623	21,543	

Total annual money income of persons 25 years old and over,[1] by years of school completed, sex, and age: United States, 1984—Continued

Sex, income, and age	Total	Years of school completed											Median school years completed
		Elementary school			High school			College					
		Total	Less than 8	8	Total	1 to 3	4	Total	1 to 3	4 or more			
										Total	4	5 or more	
	2	3	4	5	6	7	8	9	10	11	12	13	14
	Number, in thousands												
Women													
Total	75,768	10,317	5,361	4,955	41,083	9,770	31,314	24,368	12,242	12,127	7,578	4,548	12 5
With income	70,348	9,194	4,690	4,504	37,647	8,659	28,988	23,507	11,696	11,812	7,346	4,465	12 6
	Percentage distribution of women with income												
Total	100 0	100.0	100.0	100 0	100 0	100 0	100.0	100.0	100.0	100.0	100.0	100.0	12 6
$1 to $1,999 or loss	15 8	12.5	12.7	12 3	17 8	16.9	18.1	13.9	15.8	12 1	13.9	9.0	12 5
$2,000 to $2 999	5 7	10.7	12.0	9 4	6 0	8.5	5.3	3.2	3.5	2.9	3.4	2 0	12 2
$3,000 to $3,999	6 9	16.0	18.3	13.5	6 8	10.3	5.8	3.6	4.3	3 0	3.4	2 3	11 7
$4,000 to $4,999	6 7	15.0	16.9	12.9	6 6	9.5	5.7	3.6	4.3	2.9	3.1	2 4	12 1
$5,000 to $5,999	6 0	10.9	10.4	11.3	6 4	8.7	5.7	3.5	4 3	2.8	3.4	1 9	12 2
$6,000 to $6,999	5 3	8.3	7.7	9 0	5 8	7.5	5.2	3.5	4.4	2.6	3.2	1.6	12 3
$7,000 to $8,499	7 0	8.2	6.6	9 8	8 0	9.4	7.6	5.0	6.4	3.6	4.2	2 7	12 5
$8,500 to $9,999	5 2	5.3	4.6	6 0	5.9	5.9	5.8	4.1	5.1	3.2	3.9	2 1	12 5
$10,000 to $12,499	9 2	5 7	4.9	6 6	10.4	8.2	11.1	8.7	10.2	7.2	8.1	5.8	12 6
$12,500 to $14,999	6 5	2 6	2 3	3.0	6 8	5.0	7.3	7.4	8.0	6.8	7.5	5 7	12 8
$15,000 to $17,499	6 5	1 6	1.2	2 1	6.3	3 9	7.1	8.6	8.9	8.3	8.7	7 8	12 9
$17,500 to $19,999	4 4	1.2	0 9	1 4	3 8	2 0	4.4	6.7	6.1	7 2	7 0	7 6	13 4
$20,000 to $24,999	6 8	1 1	0 8	1 4	5 2	2 6	5.9	11.7	8.8	14 6	13.5	16 4	14 7
$25,000 to $29,999	3 6	0 4	0 4	0 4	2 1	0 9	2.4	7.3	5.3	9 3	7.6	12 1	15 7
$30,000 to $34,999	1 8	0 2	0.1	0 2	1 0	0.3	1.2	3.9	2.2	5.5	3.6	8.5	15 6
$35,000 to $49,999	1 7	0.2	0 1	0.4	0 8	0.3	1.0	3.5	1.8	5.3	3.7	8.0	16 2
$50,000 to $74,999	0 6	0.1	0 1	0 1	0 3	0.2	0.3	1.2	0.5	1.9	1.1	3.1	15 9
$75,000 and over	0 2	0 1	(3)	0 2	0 1	0.1	0.1	0.5	0.2	0.8	0.7	0 9	16 0
	Median income												
All ages, 25 and over[2]	$6,631	$4,194	$3,868	$4,657	$6,280	$4,930	$6,985	$10,850	$8,583	$13,484	$11,717	$16,755	
25 to 34 years	7,972	4,547	4,147	5,144	6,332	4,605	6,854	11,115	8,867	13,300	12,344	15,518	
35 to 44 years	7,851	4,319	3,861	5,175	7,009	5,533	7,563	11,276	9,077	14,398	10,850	17,920	
45 to 54 years	7,502	4,503	4,134	5,143	7,124	5,301	7,723	11,504	9,361	16,375	11,855	20,300	
55 to 64 years	6,907	3,779	3,638	4,047	5,882	4,321	6,683	10,861	8,247	13,968	11,957	18,515	
65 years and over	5,365	4,237	3,882	4,674	5,715	4,994	6,308	9,116	7,728	11,299	10,246	14,336	

[1] Includes full time and part time workers

[2] Age as of March 1985

[3] Less than 0 1 percent

... Data not available or not applicable

NOTE.—Because of rounding, details may not add to totals

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports* Series P 60 No 151, *Money Income of Families and Persons in the United States* 1984 (This table was prepared September 1985.)

National Assessment of Educational Progress in reading for ages 9, 13, and 17, by selected characteristics of participants: United States, 1974-75, 1979-80, and 1983-84

Selected characteristics of participants	Age 9			Age 13			Age 17[1]		
	Reading proficiency score			Reading proficiency score			Reading proficiency score		
	1974-75	1979-80	1983-84	1974-75	1979-80	1983-84	1974-75	1979-80	1983-84
1	2	3	4	5	6	7	8	9	10
All participants	**209.6**	**213.5**	**213.2**	**254.8**	**257.4**	**257.8**	**284.5**	**284.5**	**288.2**
Sex									
Male	204.2	208.5	210.0	248.4	252.8	253.5	279.2	281.1	283.4
Female	215.1	218.5	216.3	261.2	261.8	262.3	289.6	287.9	293.1
Race									
White	215.9	219.7	220.1	260.9	263.1	263.4	290.7	291.0	294.6
Black	181.9	188.9	188.4	224.4	231.9	236.8	244.0	246.1	263.5
Hispanic	182.9	189.1	193.0	231.1	236.0	239.2	254.7	261.7	268.7
Television watched per day									
0 to 2 hours	---	217.4	219.6	---	261.3	266.8	---	288.2	295.3
3 to 5 hours	---	220.0	219.8	---	256.4	261.9	---	278.2	284.4
6 hours or more	---	208.8	202.2	---	243.8	246.2	---	263.7	270.1
Parental education									
Not high school graduate	189.9	193.0	197.1	237.5	237.4	241.5	264.1	263.2	269.5
Graduated high school	211.2	211.7	211.4	253.4	252.8	253.8	280.6	276.9	280.6
Post high school	221.1	224.9	224.3	268.9	269.7	268.4	297.7	296.5	300.0
Reading material in the home[2]									
0 to 2 items	195.8	199.3	201.0	232.9	239.2	241.2	257.2	264.5	266.7
3 items	211.5	214.7	217.3	248.7	253.0	255.8	276.2	279.4	283.4
4 items	222.2	224.6	225.9	265.3	265.4	265.5	292.6	291.3	294.7
Region									
Northeast	214.2	219.8	217.1	257.6	258.9	261.0	287.4	284.0	290.8
Southeast	200.8	208.9	207.2	248.2	251.9	257.0	276.7	280.3	284.3
Central	215.1	215.1	217.2	260.3	263.4	259.3	290.0	287.2	289.2
West	206.5	211.0	211.4	252.0	254.9	254.5	281.1	285.1	288.7
Type of community									
Rural[3]	204.0	210.3	205.8	247.9	254.3	255.5	281.3	278.1	282.8
Disadvantaged metropolitan[4]	185.1	186.0	194.4	229.1	241.6	239.6	261.0	258.3	265.9
Advantaged metropolitan[5]	226.2	231.9	231.4	271.5	275.2	274.7	301.2	299.1	300.8

[1] All participants of this age were in school.

[2] The 4 items for the scale were: (1) newspaper subscription; (2) magazine subscription; (3) more than 25 books in home; and (4) encyclopedia at home.

[3] Students in this group attend schools in communities with a population under 10,000 where most of the residents are farmers or farm workers.

[4] Students in this group attend schools in or around cities with a population greater than 200,000 where a high proportion of the residents are on welfare or are not regularly employed.

[5] Students in this group attend schools in or around cities with a population greater than 200,000 where a high proportion of the residents are in professional or managerial positions.

--- Data not available

NOTE.—The NAEP scores have been evaluated at certain performance levels. A score of 300 (adept) implies an ability to find, understand, summarize, and explain relatively complicated literary and informational material. A score of 250 (intermediate) implies an ability to search for specific information, interrelate ideas, and make generalizations about literature, science, and social studies materials. A score of 200 (basic) implies an ability to understand, combine ideas, and make inferences based on short uncomplicated passages about specific or sequentially related information. A score of 150 implies an ability to follow written directions and select phrases to describe pictures.

SOURCE: U.S. Department of Education, National Institute of Education, National Assessment of Educational Progress, *The Reading Report Card*. (This table was prepared May 1986.)

National Assessment of Educational Progress in mathematics for ages 9, 13, and 17, by selected characteristics of participants: United States, 1977-78 and 1981-82

Selected characteristics of participants	Age 9			Age 13			Age 17[1]		
	Average percentage correct		Change in percentage points	Average percentage correct		Change in percentage points	Average percentage correct		Change in percentage points
	1977-78	1981-82		1977-78	1981-82		1977-78	1981-82	
1	2	3	4	5	6	7	8	9	10
All participants	**55.4**	**56.4**	**1.0**	**56.6**	**60.5**	**3.9**	**60.4**	**60.2**	**-0.2**
Sex									
Male	55.3	55.8	0.5	56.4	60.4	4.0	62.0	61.6	-0.4
Female	55.3	56.9	1.6	56.9	60.6	3.7	58.8	58.9	0.1
Race									
White	58.1	58.8	0.7	59.9	63.1	3.2	63.2	63.1	-0.1
Black	43.1	45.2	2.1	41.7	48.2	6.5	43.7	45.0	1.3
Hispanic	46.6	47.7	1.1	45.4	51.9	6.5	48.5	49.4	0.9
Parental education									
Not high school graduate	47.9	49.2	1.3	49.0	52.4	3.4	50.1	50.3	0.2
Graduated high school	56.1	57.1	1.0	56.9	58.8	1.9	58.0	58.2	0.2
Post high school	60.5	58.9	-1.6	60.5	63.7	3.2	63.0	63.1	0.1
Size and type of community									
Small place	54.7	55.5	0.8	55.1	58.8	3.7	58.5	59.2	0.7
Medium city	56.4	56.5	0.1	61.9	63.0	1.1	65.0	62.0	-3.0
Main big city	51.9	54.2	2.3	53.1	57.4	4.3	57.9	57.4	-0.5
Urban fringe	59.8	59.4	-0.4	61.0	64.4	3.4	63.6	62.3	-1.3
Rural[2]	51.1	52.7	1.6	52.6	56.3	3.7	58.0	57.0	-1.0
Disadvantaged urban[3]	44.4	45.5	1.0	43.5	49.3	5.8	45.8	47.7	1.9
Advantaged urban[4]	65.0	66.3	1.3	65.1	70.7	5.6	70.0	69.7	-0.3
Region									
Northeast	58.6	59.0	0.4	60.3	64.4	4.1	63.1	62.8	-0.3
Southeast	51.4	52.9	1.5	51.6	56.2	4.6	56.5	56.7	0.2
Central	58.2	57.8	-0.4	59.3	61.9	2.6	63.0	62.1	-0.9
West	52.6	55.9	3.3	54.5	59.0	4.5	57.7	58.4	0.7

[1]All participants of this age were in school.

[2]Students in this group attend schools in communities with a population under 10,000 where most of the residents are farmers or farm workers.

[3]Students in this group attend schools in or around cities with a population greater than 200,000 where a high proportion of the residents are on welfare or are not regularly employed.

[4]Students in this group attend schools in or around cities with a population greater than 200,000 where a high proportion of the residents are in professional or managerial positions.

NOTE.—The change in percentage points is equal to the difference in the average percentage correct for each year but may differ in this table due to rounding.

SOURCE: U.S. Department of Education, National Assessment of Educational Progress, unpublished data. (This table was prepared January 1986.)

National Assessment of Educational Progress in science for ages 9, 13, and 17, by assessment area and selected characteristics of participants: United States, 1976-77 and 1981-82

Selected characteristics of participants	Assessment area								
	Content			Inquiry			Science, technology, and society		
	Average percentage correct		Change in percentage points	Average percentage correct		Change in percentage points	Average percentage correct		Change in percentage points
	1976-77	1981-82		1976-77	1981-82		1976-77	1981-82	
1	2	3	4	5	6	7	8	9	10
9-year-olds, average	---	---	---	**53.6**	**52.6**	**-1.0**	**57.1**	**59.9**	**2.8**
Sex									
Male	—	—	—	53.9	52.8	-1.1	57.4	60.5	3.1
Female	—	—	—	53.4	52.5	-0.9	56.8	59.4	2.6
Race and sex									
White male	—	—	—	57.2	55.9	-1.3	59.7	62.7	3.0
Black male	—	—	—	37.4	40.8	3.4	46.3	50.7	4.4
White female	—	—	—	57.0	55.3	-1.7	59.1	61.3	2.2
Black female	—	—	—	39.5	41.4	1.9	47.4	51.7	4.3
Region									
Northeast	—	—	—	56.1	54.9	-1.2	57.7	59.8	2.1
Southeast	—	—	—	48.5	50.5	2.0	54.6	57.2	2.6
Central	—	—	—	56.1	54.6	-1.5	57.8	61.4	3.6
West	—	—	—	52.6	50.6	-2.0	57.9	60.6	2.7
13-year-olds, average	**52.8**	**52.4**	**-0.4**	**58.6**	**58.0**	**-0.6**	**56.8**	**57.4**	**0.6**
Sex									
Male	54.4	54.7	0.3	58.9	58.5	-0.4	58.6	59.5	0.9
Female	51.2	50.2	-1.0	58.4	57.6	-0.8	55.0	55.3	0.3
Race and sex									
White male	57.0	56.8	-0.2	61.2	60.4	-0.8	60.8	61.5	0.7
Black male	42.2	44.6	2.4	48.2	48.8	0.6	48.6	50.1	1.5
White female	53.6	52.4	-1.2	60.8	59.7	-1.1	57.0	57.4	0.4
Black female	41.4	40.6	-0.8	49.2	49.3	0.1	47.6	46.8	-0.8
Region									
Northeast	55.0	53.3	-1.7	61.9	59.9	-2.0	58.4	57.6	-0.8
Southeast	49.6	49.0	-0.6	55.7	54.4	-1.3	55.1	55.2	0.1
Central	54.4	54.1	-0.3	60.4	59.9	-0.5	57.7	59.0	1.3
West	51.8	52.5	0.7	55.7	57.4	1.7	55.7	57.1	1.4
17-year-olds, average	**61.7**	**59.7**	**-2.0**	**72.2**	**69.6**	**-2.6**	**67.5**	**67.0**	**-0.5**
Sex									
Male	64.9	62.7	-2.2	72.8	70.2	-2.6	70.0	68.6	-1.4
Female	58.6	56.9	-1.7	71.5	69.1	-2.4	65.1	65.4	0.3
Race and sex									
White male	67.3	65.8	-1.7	75.4	72.8	-2.6	72.4	71.2	-1.2
Black male	49.8	47.8	-1.8	58.2	58.1	-0.1	55.5	55.8	0.3
White female	60.9	59.3	-1.6	74.1	71.6	-2.5	67.6	67.8	0.2
Black female	45.7	44.4	-1.3	58.6	56.7	-1.9	52.1	54.1	2.0
Region									
Northeast	64.2	60.1	-4.1	74.7	71.1	-3.6	68.6	67.0	-1.6
Southeast	57.4	57.3	-0.1	68.6	66.7	-1.9	63.9	64.6	0.7
Central	62.8	61.9	-0.9	73.5	71.4	-2.1	69.2	68.6	-0.6
West	61.1	58.7	-2.4	70.7	68.2	-2.5	66.9	67.0	0.1

—Data not available.

NOTE.—The change in percentage points is equal to the difference in the average percentage correct for each year but may differ in this table due to rounding.

SOURCE: University of Minnesota, Minnesota Research and Evaluation Center, *Images of Science, 1983* (copyright). (This table was prepared January 1986.)

Average number of Carnegie units earned by high school graduates,[1] by area of study and selected student and school characteristics: United States, 1982

Characteristic	Total	English	Foreign language	Mathematics	Natural science	Social science	Arts	Business	Trade and industry	Other[2]
1	2	3	4	5	6	7	8	9	10	11
Average number of units	**21.0**	**3.7**	**1.0**	**2.5**	**1.9**	**2.6**	**1.4**	**1.7**	**.9**	**5.4**
Student characteristics										
Sex										
Male	20.8	3.6	.8	2.6	1.9	2.6	1.2	1.0	1.6	5.4
Female	21.2	3.7	1.2	2.5	1.9	2.6	1.5	2.4	.2	5.3
Race/ethnicity										
White, non-Hispanic	21.2	3.7	1.1	2.6	2.0	2.6	1.4	1.8	.8	5.2
Black, non-Hispanic	20.3	3.6	.7	2.4	1.6	2.5	1.2	1.7	.8	5.8
Hispanic	20.7	3.6	.8	2.2	1.5	2.5	1.2	1.6	1.1	6.1
Asian or Pacific Islander	21.7	3.6	1.9	3.1	2.4	2.5	1.2	1.1	.7	5.2
American Indian/Alaskan Native	20.6	3.5	.4	2.0	1.6	2.7	1.6	1.5	1.6	5.6
Test performance group[3]										
Low	20.0	3.4	.3	1.9	1.2	2.5	1.3	1.8	1.1	6.4
Low-middle	20.7	3.6	.7	2.2	1.5	2.6	1.3	2.2	1.0	5.6
High-middle	21.3	3.7	1.1	2.6	2.0	2.6	1.4	1.9	.8	5.3
High	22.0	3.8	1.9	3.3	2.7	2.7	1.5	1.2	.5	4.4
Postsecondary education plans										
None	20.0	3.5	.3	1.9	1.3	2.5	1.2	2.0	1.4	6.0
Vocational/technical school	20.7	3.5	.5	2.0	1.4	2.6	1.4	2.0	1.4	6.1
Less than 4 years of college	21.1	3.7	1.0	2.4	1.7	2.6	1.4	2.1	.7	5.5
Bachelor's degree	21.7	3.8	1.5	3.1	2.3	2.7	1.5	1.5	.5	4.9
Advanced degree	21.6	3.8	1.9	3.2	2.6	2.8	1.4	1.2	.3	4.8
Time spent on homework										
Less than 1 hour per week	20.1	3.4	.4	2.0	1.3	2.4	1.3	1.4	1.8	6.1
1 to less than 5 hours per week	21.0	3.6	.9	2.5	1.8	2.6	1.4	1.9	.9	5.5
5 or more hours per week	21.7	3.8	1.8	3.1	2.5	2.6	1.4	1.5	.3	4.6
School characteristics										
Control										
Public	20.9	3.6	.9	2.5	1.8	2.6	1.4	1.8	.9	5.4
Catholic	23.4	4.1	2.0	3.3	2.3	2.7	1.0	1.5	.3	6.2
Other private	20.4	3.9	1.9	3.0	2.4	2.9	1.4	.9	.3	3.7

[1]Data are based on student transcripts for the last 4 years of high school.

[2]Includes courses in architecture, computer and information sciences, health, home economics, industrial arts, personal and social development, philosophy, physical education, psychology, public affairs, and religion.

[3]Test performance as measured by a test battery administered as part of the "High School and Beyond" survey.

NOTE.—Data have been revised slightly from previously published figures. The Carnegie unit is a standard of measurement that represents one credit for the completion of a 1-year course. Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Education, Center for Education Statistics, "High School and Beyond, 1982" survey. (This table was prepared May 1986.)

Total first-time-freshman enrollment in institutions of higher education, by sex of student, attendance status, and type and control of institution: United States, fall 1955 to fall 1985

[In thousands]

Year	Total enrollment	Men			Women			Type of institution, by control			
		Total	Full-time	Part-time	Total	Full-time	Part-time	4-year		2-year	
								Public	Private	Public	Private
1	2	3	4	5	6	7	8	9	10	11	12
1955[1]	670	416	---	---	254	---	---	[2]283	[2]247	[2]117	[2]23
1956[1]	718	443	---	---	275	---	---	[2]293	[2]262	[2]137	[2]25
1957[1]	724	442	---	---	282	---	---	[2]294	[2]263	[2]141	[2]27
1958[1]	775	465	---	---	310	---	---	[2]328	[2]272	[2]146	[2]29
1959[1]	822	488	---	---	334	---	---	[2]348	[2]292	[2]153	[2]28
1960[1]	923	540	---	---	384	---	---	[2]396	[2]313	[2]182	[2]32
1961[1]	1,018	592	---	---	426	---	---	[2]438	[2]336	[2]210	[2]34
1962[1]	1,031	598	---	---	432	---	---	[2]445	[2]325	[2]225	[2]36
1963[1]	1,046	604	---	---	442	---	---	---	---	---	---
1964[1]	1,225	702	---	---	523	---	---	[2]539	[2]363	[2]275	[2]47
1965[1]	1,442	829	---	---	613	---	---	[2]642	[2]399	[2]348	[2]53
1966	1,554	890	---	---	665	---	---	[2]626	[2]383	[2]478	[2]67
1967	1,641	931	761	170	710	574	136	[2]645	[2]368	[2]561	[2]67
1968	1,893	1,082	847	235	810	624	187	[2]725	[2]378	[2]718	[2]72
1969	1,967	1,118	876	242	849	649	200	[2]737	[2]393	[2]776	[2]61
1970	2,063	1,152	896	256	911	691	221	[2]754	[2]397	[2]854	[2]58
1971	2,119	1,171	896	275	949	710	238	[2]738	[2]386	[2]937	[2]58
1972	2,153	1,158	858	299	995	716	279	680	381	1,037	55
1973	2,226	1,182	867	315	1,044	740	304	699	379	1,089	59
1974	2,366	1,244	896	348	1,122	777	345	746	386	1,176	58
1975	2,515	1,328	942	386	1,187	821	366	772	395	1,284	64
1976	2,347	1,170	855	316	1,177	808	369	717	414	1,153	63
1977	2,394	1,156	840	316	1,239	841	398	737	405	1,186	67
1978	2,390	1,142	817	324	1,248	834	414	737	407	1,174	73
1979	2,503	1,180	840	340	1,323	866	457	760	415	1,254	74
1980	2,588	1,219	862	357	1,369	887	481	765	418	1,314	91
1981	2,595	1,218	852	366	1,378	886	492	754	419	1,318	104
1982	2,505	1,199	837	362	1,306	851	455	731	404	1,254	116
1983	2,444	1,159	825	334	1,285	853	431	728	404	1,190	122
1984	2,357	1,112	786	326	1,245	827	418	714	403	1,130	110
1985	2,292	1,076	775	301	1,216	827	389	717	399	1,060	116

[1]Excludes first-time freshmen in occupational programs not creditable towards a bachelor's degree.

[2]Data for 2-year branches of 4-year college systems are aggregated with the 4-year institutions.

---Data not available.

NOTE.—Alaska and Hawaii are included in all years. Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Fall Enrollment in Higher Education*, various years; and Center for Education Statistics, "Fall Enrollment in Colleges and Universities" surveys. (This table was prepared September 1986.)

Earned degrees conferred by institutions of higher education, by level of degree and sex of student: United States, 1869-70 to 1986-87

Year	Bachelor's degrees			Master's degrees			First-professional degrees			Doctor's degrees		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
1	2	3	4	5	6	7	8	9	10	11	12	13
1869-70	[1]9,371	[1]7,993	[1]1,378	0	0	0	[2]	[2]	[2]	1	1	0
1879-80	[1]12,896	[1]10,411	[1]2,485	879	868	11	[2]	[2]	[2]	54	51	3
1889-90	[1]15,539	[1]12,857	[1]2,682	1,015	821	194	[2]	[2]	[2]	149	147	2
1899-1900	[1]27,410	[1]22,173	[1]5,237	1,583	1,280	303	[2]	[2]	[2]	382	359	23
1909-10	[1]37,199	[1]28,762	[1]8,437	2,113	1,555	558	[2]	[2]	[2]	443	399	44
1919-20	[1]48,622	[1]31,980	[1]16,642	4,279	2,985	1,294	[2]	[2]	[2]	615	522	93
1929-30	[1]122,484	[1]73,615	[1]48,869	14,969	8,925	6,044	[2]	[2]	[2]	2,299	1,946	353
1939-40	[1]186,500	[1]109,546	[1]76,954	26,731	16,508	10,223	[2]	[2]	[2]	3,290	2,861	429
1949-50	[1]432,058	[1]328,841	[1]103,217	58,183	41,220	16,963	[2]	[2]	[2]	6,420	5,804	616
1959-60	[1]392,440	[1]254,063	[1]138,377	74,435	50,898	23,537	[2]	[2]	[2]	9,829	8,801	1,028
1960-61	369,995	226,500	141,495	81,690	55,267	26,423	25,253	24,577	676	10,575	9,463	1,112
1961-62	388,680	234,671	154,009	88,414	59,710	28,704	25,607	24,836	771	11,622	10,377	1,246
1962-63	416,928	246,129	170,799	95,470	64,198	31,272	26,590	25,753	837	12,822	11,448	1,374
1963-64	466,944	270,319	196,625	105,551	70,339	35,212	27,209	26,357	852	14,490	12,958	1,538
1964-65	501,713	289,003	212,710	117,152	77,544	39,608	28,290	27,283	1,007	16,467	14,692	1,775
1965-66	520,923	299,871	221,052	140,548	93,083	47,465	30,124	28,982	1,142	18,237	16,121	2,116
1966-67	558,852	322,948	235,904	157,707	103,092	54,615	31,895	30,401	1,294	20,617	18,153	2,464
1967-68	632,758	358,105	274,653	176,749	113,519	63,230	33,939	32,402	1,537	23,089	20,183	2,906
1968-69	729,071	410,785	318,286	193,756	121,531	72,225	35,114	33,595	1,519	26,188	22,752	3,436
1969-70	792,656	451,380	341,276	208,291	125,624	82,667	34,578	32,794	1,784	29,866	25,890	3,976
1970-71	839,730	475,594	364,136	230,509	138,146	92,363	37,948	35,544	2,402	32,107	27,530	4,577
1971-72	887,273	500,590	386,683	251,633	149,550	102,083	43,411	40,723	2,688	33,363	28,090	5,273
1972-73	922,362	518,191	404,171	263,371	154,468	108,903	50,018	46,489	3,529	34,777	28,571	6,206
1973-74	945,776	527,313	418,463	277,033	157,842	119,191	53,816	48,530	5,286	33,816	27,365	6,451
1974-75	922,933	504,841	418,092	292,450	161,570	130,880	55,916	48,956	6,960	34,083	26,817	7,266
1975-76	925,746	504,925	420,821	311,771	167,248	144,523	62,649	52,892	9,757	34,064	26,267	7,797
1976-77	919,549	495,545	424,004	317,164	167,783	149,381	64,359	52,374	11,985	33,232	25,142	8,090
1977-78	921,204	487,347	433,857	311,620	161,212	150,408	66,581	52,270	14,311	32,131	23,658	8,473
1978-79	921,390	477,344	444,046	301,079	153,370	147,709	68,848	52,652	16,196	32,730	23,541	9,189
1979-80	929,417	473,611	455,806	298,081	150,749	147,332	70,131	52,716	17,415	32,615	22,943	9,672
1980-81	935,140	469,883	465,257	295,739	147,043	148,696	71,956	52,792	19,164	32,958	22,711	10,247
1981-82	952,998	473,364	479,634	295,546	145,532	150,014	72,032	52,223	19,809	32,707	22,224	10,483
1982-83	969,510	479,140	490,370	289,921	144,697	145,224	73,136	51,310	21,826	32,775	21,902	10,873
1983-84	974,309	482,319	491,990	284,263	143,595	140,668	74,407	51,334	23,073	33,209	22,064	11,146
1984-85	979,477	482,528	496,949	286,251	143,390	142,861	75,063	50,455	24,608	32,943	21,700	11,243
1985-86[3]	979,000	483,000	496,000	285,000	142,000	143,000	75,400	50,400	25,000	32,800	21,200	11,600
1986-87[3]	978,000	480,000	498,000	286,000	142,000	144,000	75,600	50,300	25,300	32,700	20,800	11,900

[1]Includes first-professional degrees.
[2]First-professional degrees are included with bachelor's degrees.
[3]Projected.

SOURCE: U.S. Department of Education, National Center for Education Statistics: *Earned Degrees Conferred*; and Center for Education Statistics, "Degrees and Other Formal Awards Conferred" surveys. (This table was prepared November 1986.)

Bachelor's, master's, and doctor's degrees conferred by institutions of higher education, by sex of student and field of study: United States, 1983-84

Field of study	Bachelor's degrees requiring 4 or 5 years			Master's degrees			Doctor's degrees (Ph.D., Ed.D., etc.)		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
1	2	3	4	5	6	7	8	9	10
All fields	**974,309**	**482,319**	**491,990**	**284,263**	**143,595**	**140,668**	**33,289**	**22,094**	**11,148**
Agriculture and natural resources, total	19,317	13,206	6,111	4,178	2,989	1,189	1,172	1,001	171
Agribusiness and agricultural production, total	6,020	4,654	1,366	884	671	213	196	154	42
Agricultural business and management, total	4,492	3,572	920	727	560	167	166	132	34
Agricultural business and management, general	507	408	99	65	54	11	3	3	0
Agricultural business	1,628	1,292	336	62	54	8	2	0	2
Agricultural economics	2,094	1,667	427	586	441	145	161	129	32
Agricultural business and management, other	263	206	58	14	11	3	0	0	0
Agricultural mechanics	394	383	11	10	10	0	0	0	0
Agricultural production	177	129	48	39	33	6	5	4	1
Horticulture	251	143	108	36	28	12	15	11	4
International agriculture	21	19	2	17	5	12	0	0	0
Agribusiness and agricultural production, other	685	408	277	53	37	16	10	7	3
Agricultural sciences, total	9,225	5,729	3,496	2,228	1,533	695	749	641	108
Agricultural sciences, general	1,519	1,119	400	273	220	53	6	6	0
Animal sciences, total	3,974	2,210	1,764	609	389	219	206	171	35
Animal sciences, general	3,316	1,777	1,539	430	299	131	125	102	23
Animal breeding and genetics	35	28	7	28	18	10	17	15	2
Animal health	25	13	12	8	4	4	5	4	1
Animal nutrition	4	0	4	14	10	4	11	10	1
Dairy	298	215	83	54	34	20	18	15	3
Fisheries science	25	20	5	24	21	3	9	8	1
Poultry	109	83	26	38	25	13	12	11	1
Animal sciences, other	162	74	88	12	8	4	9	6	3
Food sciences	553	249	304	318	165	153	78	57	21
Plant sciences, total	2,859	1,940	919	887	639	248	362	319	43
Plant sciences, general	343	213	130	84	52	32	23	19	4
Agronomy	956	801	155	357	287	70	192	175	17
Horticulture science	888	477	411	236	145	91	72	55	17
Ornamental horticulture	413	247	166	11	3	8	1	1	0
Plant breeding and genetics	0	0	0	43	36	7	33	30	3
Plant pathology (applied)	15	6	9	29	22	7	13	13	0
Plant protection (pest management)	40	37	3	35	24	11	1	1	0
Range management	172	136	36	68	52	16	25	23	2
Plant sciences, other	32	23	9	24	18	6	2	2	0
Soil sciences	257	182	75	120	102	18	86	81	5
Agricultural sciences, other	63	29	34	22	18	4	11	7	4
Renewable natural resources, total	4,072	2,823	1,249	1,066	785	281	227	206	21
Renewable natural resources, general	1,028	610	418	239	159	80	46	41	5
Conservation and regulation	319	190	129	29	22	7	4	3	1
Fishing and fisheries	139	116	23	87	63	24	33	29	4
Forestry production and processing	297	245	52	47	42	5	16	16	0
Forestry and related sciences	1,461	1,109	342	492	365	127	103	96	7
Wildlife management	702	479	223	139	111	28	22	18	4
Renewable natural resources, other	136	74	62	33	23	10	3	3	0
Architecture and environmental design, total	9,186	5,895	3,291	3,223	2,197	1,026	84	62	22
Architecture and environmental design, general	566	462	104	41	33	8	0	0	0
Architecture	4,567	3,495	1,072	1,610	1,195	415	23	18	5
City, community, and regional planning	360	243	117	879	555	324	57	41	16
Environmental design	956	626	330	91	49	42	1	1	0
Interior design	1,356	162	1,194	18	7	11	0	0	0
Landscape architecture	957	581	376	340	205	135	1	0	1
Urban design	1	1	0	97	77	20	1	1	0
Architecture and environmental design, other	423	325	98	147	76	71	1	1	0
Area and ethnic studies, total	2,879	1,184	1,695	888	463	425	139	90	49
Area studies, total	2,291	941	1,350	747	396	351	111	68	43
African studies	16	5	11	13	6	7	5	4	1
American studies	1,119	435	684	198	71	127	62	34	28
Latin American studies	196	76	120	139	76	63	3	2	1
Middle Eastern studies	39	18	21	80	52	28	11	7	4
Russian and Slavic studies	137	65	72	61	28	33	3	3	0
Asian studies	409	198	211	172	110	62	22	14	8
European studies	181	69	112	51	35	16	0	0	0
Area studies, other	194	75	119	33	18	15	5	4	1
Ethnic studies, total	462	188	274	71	33	38	7	6	1
Afro-American (Black) studies	218	95	123	24	15	9	0	0	0
Hispanic-American studies	84	28	56	26	7	19	0	0	0
Ethnic studies, other	160	65	95	21	11	10	7	6	1
Area and ethnic studies, other	126	55	71	70	34	36	21	16	5

Bachelor's, master's, and doctor's degrees conferred by institutions of higher education, by sex of student and field of study: United States, 1983-84—Continued

Field of study	Bachelor's degrees requiring 4 or 5 years			Master's degrees			Doctor's degrees (Ph.D., Ed.D., etc.)		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
1	2	3	4	5	6	7	8	9	10
Business and management, business and office, and marketing and distribution	230,031	129,909	100,122	66,653	46,565	20,088	977	775	202
Business and management, total	222,753	127,428	95,325	66,594	46,532	20,062	976	775	201
Business and management, general	42,723	24,534	18,189	12,271	8,655	3,616	189	142	47
Accounting	47,892	25,276	22,416	3,297	2,090	1,207	53	36	17
Banking and finance	17,576	11,622	5,954	4,433	3,174	1,259	49	42	7
Business administration and management	68,229	39,932	28,297	34,917	24,605	10,312	425	354	71
Business economics	3,197	2,098	1,099	336	232	104	36	28	8
Human resources development	586	331	255	562	287	275	28	16	12
Institutional management	3,392	2,044	1,348	180	128	52	2	1	1
Insurance and risk management	486	342	144	47	36	11	4	1	3
International business management	768	361	407	1,610	1,076	534	4	3	1
Investments and securities	194	105	89	130	107	23	0	0	0
Labor/industrial relations	1,427	765	662	809	468	341	17	13	4
Management information systems	2,440	1,354	1,086	606	460	146	1	1	0
Management science, total	2,610	1,594	1,016	2,471	1,806	666	68	64	4
Business statistics	164	93	71	21	11	10	3	3	0
Operations research (quantitative methods)	677	426	251	521	405	116	48	45	3
Management science, other	1,769	1,075	694	1,929	1,390	539	17	16	1
Marketing management and research	25,055	13,212	11,843	1,659	931	728	[illegible]	27	14
Organizational behavior	379	187	192	158	95	63	27	20	7
Personnel management	1,822	870	952	327	215	112	1	1	0
Real estate	592	470	122	129	111	18	4	4	0
Small business management and ownership	79	55	24	1	0	1	0	0	0
Taxation	0	0	0	1,231	919	312	0	0	0
Trade and industrial supervision and management	658	521	137	46	40	6	0	0	0
Consumer and personal services	51	40	11	0	0	0	0	0	0
Business and management, other	2,797	1,715	1,082	1,375	1,097	278	27	22	5
Business and office, total	3,862	1,021	2,841	13	10	3	0	0	0
Accounting, bookkeeping, and related programs	209	86	123	0	0	0	0	0	0
Business data processing and related programs	1,207	702	505	8	7	1	0	0	0
Office supervision and management	1,263	87	1,176	1	0	1	0	0	0
Secretarial and related programs	925	37	888	0	0	0	0	0	0
Business and office, other	258	109	149	4	3	1	0	0	0
Marketing and distribution, total	3,416	1,460	1,956	46	23	23	1	0	1
Apparel and accessories marketing	756	23	733	1	0	1	1	0	1
Business and personal services marketing	791	467	324	4	4	0	0	0	0
General marketing	1,274	661	613	2	1	1	0	0	0
Transportation and travel marketing	190	63	127	28	10	18	0	0	0
Marketing and distribution, other	405	246	159	11	8	3	0	0	0
Communications and communications technologies, total	40,165	16,647	23,518	3,656	1,600	2,056	219	131	88
Communications, total	38,586	15,774	22,812	3,513	1,511	2,002	215	128	87
Communications, general	17,171	6,652	10,519	1,456	600	856	154	87	67
Advertising	2,360	850	1,510	127	53	74	1	0	1
Communications, research	2	0	2	16	4	12	4	3	1
Journalism (mass communications)	9,795	3,669	6,126	1,141	501	640	33	20	13
Public relations	1,171	337	834	100	36	64	0	0	0
Radio/television news broadcasting	986	432	554	32	12	20	0	0	0
Radio television, general	5,878	3,284	2,594	262	149	113	16	13	3
Communications, other	1,223	550	673	379	156	223	7	5	2
Communications technologies, total	1,579	873	706	143	89	54	4	3	1
Motion picture technology	52	43	9	0	0	0	0	0	0
Photographic technology	16	11	5	0	0	0	0	0	0
Radio and television technology	1,451	787	664	65	32	33	1	1	0
Communications technologies, other	60	32	28	78	57	21	3	2	1
Computer and information sciences, total	32,172	20,246	11,926	6,190	4,379	1,811	251	225	26
Computer and information sciences, general	26,191	16,699	9,492	5,292	3,805	1,487	242	218	24
Computer programming	323	213	110	2	2	0	0	0	0
Data processing	882	537	345	52	44	8	0	0	0
Information science and systems	3,475	1,993	1,482	618	368	250	8	4	2
Systems analysis	330	202	128	75	50	25	0	0	0
Computer and information sciences, other	971	602	369	151	110	41	3	3	0
Education, total	92,382	22,215	70,167	77,187	21,581	55,606	7,473	3,703	3,770
Education, general	1,766	354	1,412	7,954	2,213	5,741	1,227	574	653
Bilingual/bicultural education	91	10	81	309	80	229	16	7	9
Curriculum and instruction	306	15	291	3,231	760	2,471	726	270	456
Education administration, total	101	8	95	10,151	4,981	5,170	1,909	1,110	799
Education administration, general	12	3	9	6,765	3,413	3,352	1,320	801	519
Administration of special education	0	0	0	64	21	43	21	5	16
Adult and continuing education administration	0	0	0	97	29	68	24	8	16

Bachelor's, master's, and doctor's degrees conferred by institutions of higher education, by sex of student and field of study: United States, 1983-84—Continued

Field of study	Bachelor's degrees requiring 4 or 5 years			Master's degrees			Doctor's degrees (Ph.D., Ed.D., etc.)		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
1	2	3	4	5	6	7	8	9	10
Educational supervision	0	0	0	963	360	603	32	10	22
Elementary and secondary education administration	59	1	58	1,333	734	599	64	33	31
Higher education administration	6	2	4	225	99	126	338	193	145
Community college education administration	0	0	0	143	81	62	19	9	10
Educational administration, other	24	0	24	561	244	317	91	51	40
Educational media	54	8	46	877	240	637	53	30	23
Evaluation and research, total	439	20	419	283	92	171	195	99	96
Evaluation and research, general	0	0	0	92	27	65	86	40	46
Educational statistics and research	2	0	2	45	25	20	62	35	27
Educational testing, evaluation, and measurement	0	0	0	86	21	65	8	4	4
Elementary and secondary research	437	20	417	36	16	20	34	16	18
Higher education research	0	0	0	4	3	1	6	4	2
School psychology	83	20	63	1,523	439	1,084	562	257	306
Social foundations	25	3	22	224	72	152	146	86	60
Special education, total	10,301	656	9,645	10,547	1,342	9,205	239	81	158
Special education, general	6,737	442	6,295	7,390	963	6,427	203	66	137
Education of the deaf and hearing impaired	322	12	310	278	33	245	3	2	1
Education of the gifted and talented	5	1	4	142	18	124	2	2	0
Education of the emotionally handicapped	305	27	278	262	37	225	3	2	1
Education of the mentally handicapped	1,051	63	988	231	46	185	8	1	7
Education of the multiple handicapped	46	2	44	144	19	125	0	0	0
Education of the physically handicapped	71	5	66	91	12	79	3	0	3
Education of the visually handicapped	41	3	38	60	18	42	0	0	0
Remedial education	3	0	3	210	46	164	1	1	0
Special learning disabilities	490	34	456	1,140	98	1,042	11	4	7
Speech correction	872	44	828	383	23	360	1	1	0
Special education, other	358	23	335	216	29	187	4	2	2
Student counseling and personnel services	122	28	94	9,352	2,630	6,722	483	250	233
Teacher education, general programs, total	42,164	3,888	38,276	15,558	2,746	12,812	463	188	275
Adult and continuing education	136	34	102	678	202	476	144	69	75
Elementary education	34,334	2,637	31,697	9,226	1,025	8,201	127	46	81
Junior high/middle school education	393	77	316	337	53	284	1	0	1
Pre-elementary education	4,555	105	4,450	1,595	93	1,502	24	1	23
Secondary education	2,509	1,010	1,499	3,150	1,197	1,953	101	44	57
Teacher education, general programs, other	237	25	212	572	176	396	66	28	38
Teacher education, specific subject areas, total	35,868	16,830	19,038	15,142	5,328	9,814	1,054	549	505
Agricultural education	859	715	144	292	218	74	28	23	5
Art education	1,428	288	1,140	589	143	446	42	19	23
Business education	2,080	323	1,757	732	123	609	33	15	18
Driver and safety education	72	64	8	109	93	16	4	3	1
English education	979	182	797	333	52	281	14	2	12
Foreign languages education	149	22	127	93	13	80	18	9	9
Health education	1,657	466	1,191	721	157	564	58	17	41
Home economics education	1,277	26	1,251	285	3	282	10	1	9
Industrial arts education	2,878	2,571	307	832	686	146	83	52	31
Marketing and distributive education	283	119	164	27	9	18	1	1	0
Mathematics education	775	302	473	416	149	267	32	14	18
Music education	4,085	1,773	2,312	920	433	487	73	48	25
Physical education	13,936	6,936	7,001	3,575	1,855	1,720	204	124	80
Reading education	188	18	170	3,694	265	3,429	110	26	84
Science education	702	327	375	411	168	243	56	38	18
Social science education	638	341	297	123	60	63	2	1	1
Social studies education	885	494	391	116	68	48	14	11	3
Technical education	222	156	66	150	79	71	42	22	20
Trade and industrial education	1,810	1,417	393	794	452	342	71	47	24
Teacher education, other	965	291	674	930	302	628	159	76	83
Teaching English as a second language	32	11	21	565	141	424	4	2	2
Education, other	1,030	366	664	1,491	517	974	396	200	196
Engineering and engineering technologies, total	94,444	82,309	12,135	20,661	18,504	2,157	2,981	2,816	165
Engineering, total	75,732	65,064	10,668	20,094	17,998	2,096	2,979	2,814	165
Engineering, general	3,706	3,080	626	1,230	1,083	147	307	300	7
Aerospace, aeronautical, and astronautical engineering	2,534	2,359	175	562	535	27	108	104	2
Agricultural engineering	735	675	60	142	127	15	44	43	1
Architectural engineering	411	358	53	40	38	2	5	5	0
Bioengineering and biomedical engineering	540	388	152	245	180	65	51	42	9
Ceramic engineering	304	226	78	100	81	19	17	16	1
Chemical engineering	7,475	5,604	1,871	1,514	1,320	194	330	311	19
Civil engineering	9,693	8,390	1,303	3,146	2,820	326	369	345	24
Computer engineering	1,480	1,223	257	440	387	53	23	20	3
Electrical, electronics, and communications engineering	19,943	17,919	2,024	5,078	4,693	385	585	571	14
Engineering mechanics	349	301	48	167	152	15	67	64	3
Engineering physics	342	314	28	63	59	4	22	21	1
Engineering science	260	205	55	104	93	11	24	23	1
Environmental health engineering	190	129	61	360	273	87	36	34	2
Geological engineering	381	312	69	44	39	5	8	8	0
Geophysical engineering	103	88	15	11	10	1	5	4	1

Bachelor's, master's, and doctor's degrees conferred by institutions of higher education, by sex of student and field of study: United States, 1983-84—Continued

Field of study	Bachelor's degrees requiring 4 or 5 years			Master's degrees			Doctor's degrees (Ph.D., Ed.D., etc.)		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
1	2	3	4	5	6	7	8	9	10
Industrial engineering	3,937	2,883	1,054	1,557	1,279	278	119	102	17
Materials engineering	394	295	99	301	234	67	152	138	14
Mechanical engineering	16,829	14,868	1,761	2,797	2,613	184	319	312	7
Metallurgical engineering	654	510	144	283	252	31	98	84	14
Mining and mineral engineering	524	485	39	91	87	4	12	12	0
Naval architecture and marine engineering	651	616	35	92	87	5	5	5	0
Nuclear engineering	421	384	37	297	288	11	114	108	6
Ocean engineering	166	149	17	95	88	7	9	9	0
Petroleum engineering	1,634	1,454	180	281	267	14	21	21	0
Surveying and mapping sciences, total	94	73	21	16	14	2	0	0	0
Systems engineering	242	184	58	144	124	20	21	21	0
Textile engineering	40	24	16	11	8	3	1	1	0
Engineering, other	1,900	1,568	332	883	769	114	109	90	19
Engineering and related technologies, total	18,712	17,245	1,467	567	506	61	2	2	0
Architectural technologies	1,077	983	94	15	13	2	0	0	0
Civil technologies	1,021	933	88	0	0	0	0	0	0
Electrical and electronic technologies	4,525	4,261	264	4	4	0	0	0	0
Electromechanical instrumentation and maintenance technologies	79	74	5	9	9	0	0	0	0
Environmental control technologies	158	119	39	42	33	9	0	0	0
Industrial production technologies	4,524	4,132	392	287	255	32	0	0	0
Quality control and safety technologies	321	254	67	88	76	12	0	0	0
Mechanical and related technologies	2,553	2,427	126	0	0	0	0	0	0
Mining and petroleum technologies	63	57	6	1	1	0	0	0	0
Mechanics and repairers	99	97	2	0	0	0	0	0	0
Construction trades	11	10	1	16	15	1	0	0	0
Engineering and related technologies, other	4,281	3,898	383	105	100	5	2	2	0
Foreign languages, total	9,479	2,540	6,939	1,773	571	1,202	492	208	284
Foreign languages, multiple emphasis	669	149	520	189	57	132	64	26	38
African (non-Semitic) languages	0	0	0	1	1	0	5	0	5
Asiatic languages, total	266	126	140	33	14	19	14	5	9
Chinese	115	52	63	14	7	7	10	4	6
Japanese	107	45	62	7	1	6	2	0	2
Asiatic languages, other	44	29	15	12	6	6	2	1	1
Baltic-Slavic languages, total	387	160	227	92	39	53	40	21	19
Baltic languages	5	1	4	4	4	0	2	2	0
Russian languages	340	136	204	39	14	25	3	3	0
Slavic languages (other than Russian)	42	23	19	49	21	28	35	16	19
Germanic languages, total	1,347	473	874	262	99	163	74	40	34
German	1,292	455	837	241	91	150	63	30	33
Scandinavian languages	28	7	21	4	2	2	1	1	0
Germanic languages, other	27	11	16	17	6	11	10	9	1
Greek (classical)	56	38	18	10	6	4	3	2	1
Indic languages	2	1	1	4	2	2	7	3	4
Italic languages, total	6,532	1,516	5,016	1,035	281	754	214	84	130
French	2,876	575	2,301	418	101	317	86	27	59
Italian	206	43	163	41	13	28	13	3	10
Latin	121	50	71	12	5	7	4	2	2
Portuguese	34	7	27	7	2	5	1	1	0
Spanish	3,254	835	2,419	537	157	380	102	50	52
Italic languages, other	41	6	35	20	3	17	8	1	7
Semitic languages, total	70	24	46	37	25	12	15	14	1
Arabic	6	2	4	2	2	0	0	0	0
Hebrew	53	18	35	17	10	7	6	6	0
Semitic languages, other	11	4	7	18	13	5	9	8	1
Foreign languages, other	150	53	97	110	47	63	28	13	13
Allied health and health sciences, total	64,338	10,079	54,259	17,443	4,269	13,174	1,163	573	590
Allied health, total	13,518	2,445	11,073	2,776	702	2,074	42	19	23
Dental services	1,071	11	1,060	17	4	13	0	0	0
Diagnostic and treatment services	672	267	405	32	21	11	0	0	0
Medical laboratory technologies	2,714	535	2,179	46	13	33	0	0	0
Mental health/human services	628	122	506	1,002	281	721	24	12	12
Miscellaneous allied health services	849	356	493	122	45	77	0	0	0
Nursing-related services	477	12	465	1	0	1	0	0	0
Rehabilitative services	6,212	923	5,289	1,237	245	992	7	2	5
Occupational therapy	1,692	93	1,599	258	34	224	1	0	1
Physical therapy	2,347	552	2,395	399	110	289	3	2	1
Speech-language pathology audiology	438	28	410	171	10	161	0	0	0
Rehabilitative services, other	1,135	250	885	409	91	318	3	0	3
Allied health, other	995	219	676	319	93	226	11	5	6
Health sciences, total	50,820	7,634	43,186	14,667	3,567	11,100	1,121	554	567
Audiology and speech pathology	2,901	155	2,746	3,067	187	2,880	120	54	66
Basic clinical health sciences	134	55	79	225	133	92	79	57	22

Bachelor's, master's, and doctor's degrees conferred by institutions of higher education, by sex of student and field of study: United States, 1983-84—Continued

Field of study	Bachelor's degrees requiring 4 or 5 years			Master's degrees			Doctor's degrees (Ph.D., Ed.D., etc.)		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
1	2	3	4	5	6	7	8	9	10
Chiropractic	0	0	0	3	2	1	0	0	0
Dentistry, total	148	112	34	433	351	82	8	6	2
Epidemiology	0	0	0	93	51	42	57	20	37
Health services administration, total	3,014	572	2,442	2,176	961	1,215	27	15	12
Health services administration	1,948	491	1,457	1,905	832	973	22	12	10
Health care planning	36	7	29	148	51	97	4	3	1
Medical records administration	531	34	497	0	0	0	0	0	0
Health services administration, other	499	40	459	223	78	145	1	0	1
Medical laboratory	1,504	297	1,207	89	23	66	2	0	2
Medicine, total	342	176	166	112	64	48	66	45	21
Nursing	33,092	1,829	31,263	5,744	448	5,296	220	16	204
Optometry	265	181	84	5	3	2	2	2	0
Osteopathic medicine	4	4	0	43	37	6	0	0	0
Pharmacy	5,480	2,774	2,706	333	215	118	153	105	48
Pre-dentistry	136	106	30	0	0	0	0	0	0
Pre-medicine	757	527	230	2	2	0	0	0	0
Pre-veterinary	183	97	86	0	0	0	0	0	0
Public health	204	85	119	1,348	591	757	182	87	76
Veterinary medicine	203	115	88	169	108	61	104	81	23
Health sciences, other	2,455	549	1,906	825	391	434	121	66	55
Home economics and vocational home economics, total	16,316	1,016	15,300	2,422	276	2,146	278	70	208
Home economics, total	14,961	753	14,208	2,316	247	2,069	272	67	205
Home economics, general	4,217	115	4,102	664	29	635	86	13	73
Business home economics	157	7	150	0	0	0	0	0	0
Family and community services	256	16	240	31	3	28	1	0	1
Family/consumer resource management	687	70	617	52	4	48	11	2	9
Food sciences and human nutrition	3,399	252	3,147	778	85	693	59	25	34
Human environment and housing	592	43	549	49	12	37	3	0	3
Individual and family development	2,206	122	2,084	580	100	480	95	27	68
Textiles and clothing	3,237	118	3,119	123	7	116	16	0	16
Home economics, other	210	10	200	39	7	32	1	0	1
Vocational home economics, total	1,355	263	1,092	106	29	77	7	3	4
Consumer and homemaking education	665	56	609	39	10	29	7	3	4
Institutional, home management, and supporting services	382	151	231	38	12	26	0	0	0
Vocational home economics, other	308	56	252	29	7	22	0	0	0
Law, total	1,272	533	739	1,802	1,387	415	121	100	21
Law	139	76	63	1,379	1,065	314	121	100	21
Pre-law	423	274	149	0	0	0	0	0	0
Legal assisting	457	86	371	0	0	0	0	0	0
Law, other	253	97	156	423	322	101	0	0	0
Letters, total	33,739	11,507	22,232	4,818	2,058	3,760	1,215	557	658
English, general	23,434	7,575	15,859	3,500	1,211	2,289	695	317	378
Classics	429	194	235	130	71	59	58	31	27
Comparative literature	538	163	375	196	55	141	119	46	73
Composition	68	21	47	10	3	7	0	0	0
Creative writing	423	157	266	300	128	172	0	0	0
Linguistics	476	143	333	678	251	427	139	67	72
Literature, American	103	47	56	13	4	9	6	1	5
Literature, English	1,261	508	753	243	90	153	63	26	37
Rhetoric	160	52	108	36	6	30	18	10	8
Speech, debate, and forensics	5,967	2,357	3,610	626	211	415	88	49	39
Technical and business writing	163	58	105	11	4	7	0	0	0
Letters, other	717	232	485	75	24	51	29	10	19
Liberal/general studies, total	18,815	8,718	10,097	1,173	417	756	48	27	21
Liberal arts and sciences	14,172	7,284	6,888	994	353	641	30	17	13
Liberal/general studies, other	4,643	1,434	3,209	179	64	115	18	10	8
Library and archival sciences, total	255	33	222	3,805	766	3,039	74	38	36
Library and archival sciences, general	32	2	30	779	147	632	1	0	1
Library science	218	29	189	2,980	609	2,371	64	32	32
Library and archival sciences, other	5	2	3	46	10	36	9	6	3
Life sciences, total	38,640	20,558	18,082	5,406	2,996	2,410	3,437	2,381	1,056
Biology, general	27,379	14,408	12,971	2,313	1,305	1,008	617	429	188
Biochemistry and biophysics	2,052	1,209	843	254	145	109	490	348	142
Botany, total	569	277	292	404	207	197	266	196	70
Botany, general	419	209	210	239	113	126	168	122	46
Bacteriology	115	54	61	34	16	18	9	8	1

Bachelor's, master's, and doctor's degrees conferred by institutions of higher education, by sex of student and field of study: United States, 1983-84—Continued

Field of study	Bachelor's degrees requiring 4 or 5 years			Master's degrees			Doctor's degrees (Ph.D., Ed.D., etc.)		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
1	2	3	4	5	6	7	8	9	10
Plant pathology	15	6	9	106	64	42	59	47	12
Botany, other	20	8	12	25	14	11	30	19	11
Cell and molecular biology, total	509	320	189	73	45	28	185	100	85
Cell biology	36	22	14	17	10	7	43	25	18
Molecular biology	270	164	106	49	30	19	95	57	38
Cell and molecular biology, other	203	134	69	7	5	2	27	18	9
Microbiology	2,214	1,018	1,196	413	204	209	351	208	143
Miscellaneous specialized areas, total	1,677	924	753	807	399	408	502	339	163
Anatomy	0	0	0	53	26	27	103	67	36
Biometrics and biostatistics	11	4	7	80	33	47	49	32	17
Ecology	593	349	244	177	108	69	79	65	14
Marine biology	328	224	104	67	47	20	23	15	8
Neurosciences	148	66	82	21	15	6	61	49	12
Nutritional sciences	188	48	140	236	58	178	78	42	36
Toxicology	88	50	38	82	56	26	40	29	11
Miscellaneous specialized areas, other	321	183	138	91	56	35	69	40	29
Zoology	3,451	1,983	1,468	980	570	390	931	687	244
Zoology, general	2,616	1,483	1,133	347	207	140	188	140	48
Entomology	181	109	52	197	146	51	142	116	26
Genetics, human and animal	157	79	78	93	22	71	106	66	40
Pathology, human and animal	21	9	12	76	39	37	107	74	33
Pharmacology, human and animal	42	29	13	91	54	37	196	146	53
Physiology, human and animal	443	267	176	156	102	54	188	144	44
Zoology, other	11	7	4	0	0	0	3	3	0
Life sciences, other	789	419	370	182	121	61	116	74	41
Mathematics, total	13,211	7,366	5,845	2,741	1,791	950	699	569	129
Mathematics, general	11,489	6,330	5,159	1,846	1,170	676	481	390	91
Actuarial sciences	124	76	48	18	18	0	0	0	0
Applied mathematics	742	447	295	253	177	76	42	37	5
Pure mathematics	93	53	40	25	19	6	15	11	4
Statistics	298	167	131	471	318	153	149	126	23
Mathematics, other	465	293	172	128	89	39	8	5	3
Military sciences and military technologies, total	195	179	16	127	126	1	0	0	0
Military sciences, total	195	179	16	78	77	1	0	0	0
Military technologies, total	0	0	0	49	49	0	0	0	0
Multi/interdisciplinary studies, total	16,734	8,222	8,512	3,148	1,865	1,283	378	240	138
Biological and physical sciences	2,558	1,656	902	280	158	122	31	24	7
Engineering and other disciplines	381	276	105	249	186	63	23	20	3
Humanities and social sciences	2,864	941	1,723	623	277	346	125	66	59
Systems science	32	15	17	878	758	120	10	8	2
Women's studies	126	11	115	9	0	9	2	0	2
Multi/interdisciplinary studies, other	10,973	5,323	5,650	1,109	486	623	187	122	65
Parks and recreation, total	4,752	1,765	2,987	555	254	301	27	19	8
Parks and recreation, general	1,872	632	1,240	200	83	117	12	8	4
Outdoor recreation	165	57	108	31	17	14	0	0	0
Park and recreation management	2,451	932	1,519	245	116	129	8	6	2
Water resources	44	36	8	34	17	17	2	1	1
Parks and recreation, other	220	108	112	45	21	24	5	4	1
Philosophy and religion, total	6,435	4,299	2,136	1,153	741	412	442	330	112
Philosophy	3,300	2,305	995	477	354	123	219	170	49
Religion	2,818	1,767	1,051	592	340	252	204	144	60
Philosophy and religion, other	317	227	90	84	47	37	19	16	3
Theology, total	5,914	4,366	1,548	5,106	3,408	1,698	1,202	1,124	78
Biblical languages	63	58	5	37	36	1	1	1	0
Bible studies	2,128	1,761	367	307	258	49	9	7	2
Missionary studies	243	162	81	122	104	18	18	18	0
Religious education	1,199	613	586	1,042	525	517	47	44	3
Religious music	271	160	111	106	69	37	6	4	2
Theological studies	1,333	1,133	200	2,058	1,485	593	848	792	56
Theology, other	677	479	198	1,434	961	483	273	258	15
Physical sciences and science technologies, total	23,671	17,134	6,537	5,576	4,268	1,308	3,306	2,815	491
Physical sciences, total	23,525	17,038	6,487	5,550	4,246	1,304	3,298	2,809	489
Physical sciences, general	475	338	137	129	65	64	4	4	0
Astronomy	73	55	18	58	46	10	56	52	4
Astrophysics	21	19	2	11	11	0	10	9	1

Bachelor's, master's, and doctor's degrees conferred by institutions of higher education, by sex of student and field of study: United States, 1983-84—Continued

Field of study	Bachelor's degrees requiring 4 or 5 years			Master's degrees			Doctor's degrees (Ph.D., Ed.D., etc.)		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
1	2	3	4	5	6	7	8	9	10
Atmospheric science and meteorology	478	380	98	246	213	33	50	45	5
Chemistry, total	10,704	6,973	3,731	1,687	1,137	530	1,744	1,425	319
Chemistry, general	10,468	6,815	3,653	1,548	1,057	492	1,592	1,299	293
Analytical chemistry	26	17	9	10	6	4	6	5	1
Inorganic chemistry	0	0	0	6	4	2	15	10	5
Organic chemistry	0	0	0	20	17	3	37	33	4
Pharmaceutical chemistry	6	4	2	35	19	16	37	26	11
Chemistry, other	204	137	67	47	34	13	57	52	5
Geological sciences, total	6,549	4,934	1,615	1,614	1,149	385	315	266	49
Geology	6,171	4,645	1,526	1,311	998	313	233	192	41
Geochemistry	12	7	5	18	13	5	17	16	1
Geophysics and seismology	175	142	33	107	90	17	36	32	4
Geological sciences, other	191	140	51	78	48	30	29	26	3
Miscellaneous physical sciences, total	935	708	227	303	223	80	119	90	29
Metallurgy	3	2	1	42	38	4	9	8	1
Oceanography	162	134	28	119	88	31	69	50	19
Earth science	733	542	191	103	67	36	22	17	5
Miscellaneous physical sciences, other	37	30	7	39	30	9	19	15	4
Physics, total	3,907	3,350	557	1,532	1,340	192	953	877	76
Physics, general	3,731	3,198	533	1,440	1,256	184	863	792	71
Physics, other	176	152	24	92	84	8	90	85	5
Physical sciences, other	383	281	102	92	62	30	47	41	6
Science technologies, total	146	96	50	28	22	4	8	6	2
Psychology, total	39,872	12,792	27,080	8,002	2,961	5,041	2,973	1,517	1,456
Psychology, general	37,575	12,023	25,552	4,208	1,641	2,565	1,747	891	856
Clinical psychology	74	15	59	701	260	441	689	349	340
Counseling psychology	100	25	75	1,771	580	1,191	179	92	87
Developmental psychology	315	34	281	128	34	94	45	22	23
Experimental psychology	167	53	114	40	17	23	69	40	29
Industrial and organizational psychology	73	22	51	348	168	180	35	20	15
Physiological psychology	141	54	87	3	2	1	31	21	10
Psychometrics and quantitative psychology	3	2	1	30	9	21	7	1	6
Social psychology	410	171	239	48	19	29	18	10	8
Psychology, other	1,014	393	621	727	231	496	143	71	72
Protective services, total	12,654	7,804	4,850	1,219	901	318	31	26	5
Criminal justice, total	12,293	7,524	4,769	1,189	876	313	31	26	5
Correctional administration	287	176	111	51	34	17	1	1	0
Corrections	369	102	267	100	57	43	0	0	0
Criminal justice administration	3,161	1,937	1,224	278	204	72	0	0	0
Criminal justice studies	6,067	3,684	2,383	606	473	133	21	17	4
Criminal justice technology	128	79	49	0	0	0	0	0	0
Forensic	78	39	39	39	28	11	0	0	0
Law enforcement	1,303	965	338	40	27	13	0	0	0
Law enforcement administration	144	106	38	9	8	1	0	0	0
Criminal justice, other	756	436	320	68	45	23	9	8	1
Fire protection	117	113	4	3	3	0	0	0	0
Protective services, other	244	167	77	27	22	5	0	0	0
Public affairs, total	14,396	4,592	9,804	15,373	5,869	9,504	421	231	190
Public affairs, general	804	402	402	595	334	261	18	10	8
Community services	877	240	637	237	136	101	6	3	3
International public service	80	33	47	103	50	53	0	0	0
Public administration	1,643	858	785	5,032	3,071	1,961	139	104	35
Public policy studies	209	121	88	297	185	112	30	18	12
Public works	3	3	0	22	10	12	0	0	0
Social work, total	8,824	1,248	7,576	8,547	1,759	6,788	227	95	132
Social work, general	8,375	1,174	7,201	8,086	1,651	6,435	225	94	131
Medical social work	48	7	41	16	4	12	1	1	0
Social work, other	401	67	334	445	104	341	1	0	1
Transportation and material moving	1,698	1,554	144	194	181	13	0	0	0
Public affairs, other	258	133	125	346	143	203	1	1	0
Social sciences, total	93,212	52,102	41,110	10,465	6,496	3,969	2,911	2,030	881
Social sciences, general	4,643	1,991	2,652	582	318	264	34	17	17
Anthropology	2,693	999	1,694	740	312	428	327	164	163
Archeology	67	29	38	39	12	27	11	3	8
Criminology	1,005	565	440	79	56	23	5	4	1
Demography	27	18	9	6	4	2	9	5	4
Economics	20,719	13,645	7,074	1,891	1,446	445	729	620	109
Geography	3,135	2,175	1,020	583	406	177	120	95	25
History	16,842	10,363	6,279	1,937	1,164	773	561	376	185
International relations	2,927	1,393	1,534	1,149	748	401	63	55	8

Bachelor's, master's, and doctor's degrees conferred by institutions of higher education, by sex of student and field of study: United States, 1983-84—Continued

Field of study	Bachelor's degrees requiring 4 or 5 years			Master's degrees			Doctor's degrees (Ph.D., Ed.D., etc.)		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
1	2	3	4	5	6	7	8	9	10
Political science and government	25,719	15,655	10,064	1,769	1,232	537	457	352	105
Sociology	13,145	4,218	8,927	1,008	456	552	520	289	231
Urban studies	767	357	410	433	236	197	26	18	8
Social sciences, other	1,663	694	969	249	106	143	49	32	17
Visual and performing arts, total	39,833	15,103	24,730	8,520	3,897	4,623	728	406	322
Visual and performing arts, general	1,478	504	974	192	75	117	10	6	4
Crafts	417	99	318	60	18	42	0	0	0
Dance	793	87	706	174	25	149	3	0	3
Design	4,734	1,781	2,953	254	124	130	0	0	0
Dramatic arts	5,315	2,209	3,106	1,181	589	592	100	55	45
Film arts, total	1,647	1,027	620	309	210	99	5	3	2
Cinematography/film	566	381	185	192	133	59	5	3	2
Photography	787	458	329	84	55	29	0	0	0
Film arts, other	294	188	106	33	22	11	0	0	0
Fine arts, total	16,210	5,120	11,090	2,819	1,119	1,700	147	38	109
Fine arts, general	10,771	3,386	7,385	1,634	701	933	23	5	18
Art history and appreciation	1,705	363	1,342	389	85	304	106	27	79
Arts management	111	43	68	42	11	31	1	0	1
Painting	917	336	581	181	80	101	0	0	0
Fine arts, other	2,706	992	1,714	573	242	331	17	6	11
Graphic arts technology	210	91	119	9	6	3	5	4	1
Music, total	7,870	3,678	4,192	3,450	1,699	1,751	456	300	156
Music, general	4,323	1,896	2,427	1,360	648	712	216	149	67
Music history and appreciation	97	39	58	69	21	48	32	16	16
Music performance	2,532	1,212	1,320	1,583	757	826	116	72	44
Music theory and composition	352	231	121	222	152	70	84	54	30
Music, other	566	300	266	216	121	95	10	9	1
Precision production	272	125	147	0	0	0	0	0	0
Visual and performing arts, other	887	382	505	72	32	40	0	0	0

SOURCE: U.S. Department of Education, Center for Education Statistics, "Degrees and Other Formal Awards Conferred, 1983-84" survey. (This table was prepared September 1986.)

Bachelor's degrees conferred by institutions of higher education, by racial/ethnic group, major field of study, and sex of student: United States, 1980-81

Major field of study and sex of student	Total	White non-Hispanic	Black non-Hispanic	Hispanic	Asian or Pacific Islander	American Indian/ Alaskan Native	Nonresident alien
1	2	3	4	5	6	7	8
All fields, total[1]	**934,800**	**807,319**	**60,673**	**21,932**	**18,794**	**3,593**	**22,589**
Men	469,625	406,173	24,511	10,810	10,107	1,700	16,324
Women	465,175	401,146	36,162	11,022	8,687	1,893	6,265
Agriculture and natural resources, total	21,886	20,234	380	248	312	96	616
Men	15,154	13,908	259	181	200	81	525
Women	6,732	6,326	121	67	112	15	91
Architecture and environmental design, total	9,455	8,069	300	270	296	24	496
Men	6,800	5,778	210	203	217	20	372
Women	2,655	2,291	90	67	79	4	124
Area studies, total	2,585	2,242	67	104	118	4	50
Men	1,031	900	20	41	39	3	28
Women	1,554	1,342	47	63	79	1	22
Biological sciences, total	43,216	37,276	2,269	1,144	1,489	137	901
Men	24,149	21,085	954	648	830	67	565
Women	19,067	16,191	1,315	496	659	70	336
Business and management, total	200,857	174,198	13,400	4,114	3,943	636	4,566
Men	127,058	112,267	6,503	2,560	2,121	388	3,219
Women	73,799	61,931	6,897	1,554	1,822	248	1,347
Communications, total	31,282	27,473	2,405	557	368	110	369
Men	14,179	12,541	980	258	153	51	196
Women	17,103	14,932	1,425	299	215	59	173
Computer and information sciences, total	15,120	12,565	786	302	669	21	777
Men	10,202	8,622	394	193	410	17	566
Women	4,918	3,943	392	109	259	4	211
Education, total	108,265	93,724	9,494	2,847	723	569	908
Men	27,069	22,876	2,587	754	258	164	430
Women	81,196	70,848	6,907	2,093	465	405	478
Engineering, total	74,954	60,848	2,449	1,433	3,066	195	6,963
Men	67,255	54,453	2,020	1,302	2,699	173	6,608
Women	7,699	6,395	429	131	367	22	355
Fine and applied arts, total	40,241	35,933	1,835	779	788	187	719
Men	14,624	12,768	811	345	289	73	338
Women	25,617	23,165	1,024	434	499	114	381
Foreign languages, total	10,319	8,614	293	909	210	25	268
Men	2,520	2,067	76	258	39	10	70
Women	7,799	6,547	217	651	171	15	198
Health professions, total	63,649	56,790	3,603	1,153	1,312	209	582
Men	10,519	9,276	436	262	299	39	207
Women	53,130	47,514	3,167	891	1,013	170	375
Home economics, total	18,370	16,260	1,125	230	395	73	287
Men	916	745	83	17	41	1	29
Women	17,454	15,515	1,042	213	354	72	258
Law, total	776	731	22	10	5	2	6
Men	388	368	9	4	2	1	4
Women	388	363	13	6	3	1	2
Letters, total	40,028	36,315	1,980	694	460	103	476
Men	16,107	14,748	666	278	167	44	204
Women	23,921	21,567	1,314	416	293	59	272
Library science, total	375	339	30	1	2	2	1
Men	22	18	2	1	---	1	---
Women	353	321	28	---	2	1	1
Mathematics, total	11,078	9,445	584	185	391	18	455
Men	6,342	5,422	276	113	223	10	298
Women	4,736	4,023	308	72	168	8	157
Military sciences, total	305	289	6	3	4	1	2
Men	293	278	5	3	4	1	2
Women	12	11	1	---	---	---	---
Physical sciences, total	23,950	21,246	906	405	596	65	732
Men	18,062	16,124	613	297	412	44	572
Women	5,888	5,122	293	108	184	21	160

Bachelor's degrees conferred by institutions of higher education, by racial/ethnic group, major field of study, and sex of student: United States, 1980-81—Continued

Major field of study and sex of student	Total	White non-Hispanic	Black non-Hispanic	Hispanic	Asian or Pacific Islander	American Indian/ Alaskan Native	Nonresident alien
1	2	3	4	5	6	7	8
Psychology, total	40,833	34,701	3,308	1,305	839	196	484
Men	14,295	12,215	1,040	490	293	68	189
Women	26,538	22,486	2,268	815	546	128	295
Public affairs and services, total	36,311	29,310	4,869	1,178	416	224	316
Men	15,266	12,476	1,726	590	187	91	196
Women	21,045	16,834	3,143	586	229	133	120
Social sciences, total	100,647	85,535	8,129	2,888	1,645	474	1,976
Men	56,156	48,509	3,696	1,549	860	241	1,301
Women	44,491	37,026	4,433	1,339	785	233	675
Theology, total	5,807	5,352	166	88	58	5	138
Men	4,334	3,964	142	74	43	5	106
Women	1,473	1,388	24	14	15	---	32
Interdisciplinary studies, total	34,491	29,830	2,267	987	689	217	501
Men	16,884	14,765	1,003	389	321	107	299
Women	17,607	15,065	1,264	598	368	110	202

'This tabulation excludes 258 men and 82 women whose racial, ethnic group was not reported.

---Data not available or not applicable

SOURCE: U.S. Department of Education, Center for Education Statistics, "Degrees and Other Formal Awards Conferred, 1980-81" survey. (This table was prepared June 1986.)