
NATIONAL CENTER FOR EDUCATION STATISTICS

**Findings from
THE CONDITION OF EDUCATION 1995**

**NO.
5**

**THE EDUCATIONAL
PROGRESS OF
WOMEN**



U.S. DEPARTMENT OF EDUCATION

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THE EDUCATIONAL PROGRESS OF WOMEN

Over the past two decades, women have made substantial educational progress. The large gaps between the education levels of women and men that were evident in the early 1970s have essentially disappeared for the younger generation. Although they still lag behind males in mathematics and science achievement, high school females on average outperform males in reading and writing, and take more credits in academic subjects. In addition, females are more likely than males to attend college after high school, and are as likely to graduate with a postsecondary degree.

It remains to be seen, however, how these gains in educational attainment will be rewarded in the marketplace. In 1993, the average earnings of female high school graduates aged 25–34 were more than one-third lower than those of male graduates of the same age. Similarly, female college graduates earn, on average, salaries that are 80 percent of what their male counterparts receive. Furthermore, these large gender differences in earnings persist after taking educational attainment and prose, document, and quantitative literacy skills into account.¹

Differences in academic achievement, progression rates, types of courses taken, level of effort, and field of study may all affect the labor market opportunities of women relative to men. This fifth publication in the series of *Findings from The Condition of Education* summarizes educational differences between females and males that research has shown to be related to labor market outcomes.

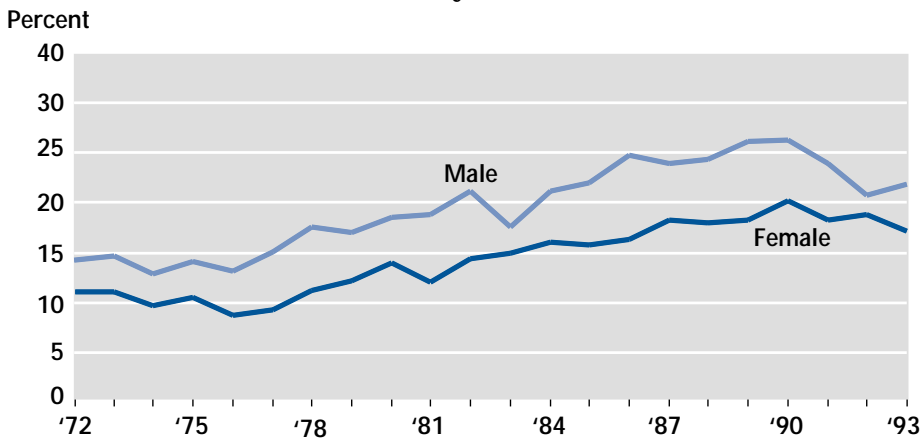
ELEMENTARY AND SECONDARY EDUCATION

PROGRESS IN SCHOOL

- Females are generally younger than males in first grade and are less likely to fall behind or require special educational services once enrolled.

In 1993, a smaller percentage of females than males in first grade were age 7 or older (17 and 22 percent, respectively).² Females are also less likely than males to repeat a grade. In 1992, 9 percent of 16- to 24-year-old females had been retained in one or more grades, compared to 14 percent of their male counterparts.³

**Percentage of first-grade students
who are at least 7 years old: 1972–1993**



SOURCE: U.S. Department of Commerce, Bureau of the Census, October Current Population Surveys.

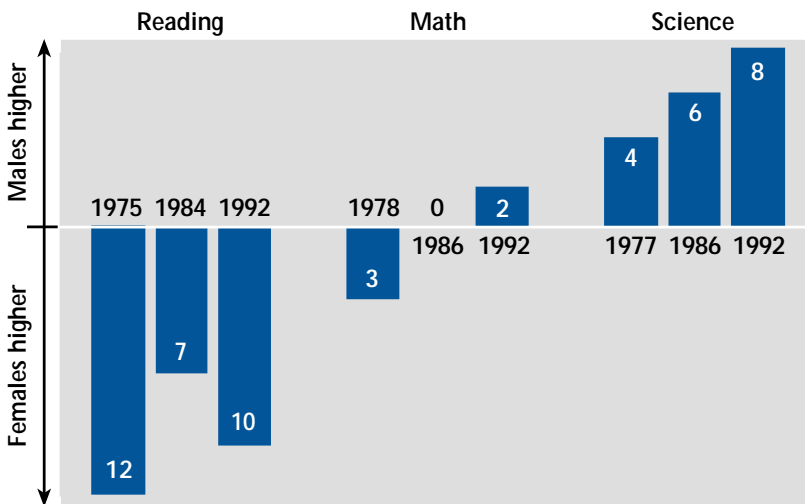
Females are also far less likely than males to be enrolled in special education programs: in 1990, less than one-third of students in special education were female.⁴

ACHIEVEMENT

- Differences in the academic performance of female and male students appear as early as age 9, and persist through age 17.

Although overall proficiency scores have increased or remained relatively constant over time, differences between female and male proficiency remain. Compared to males, scores at age 9 for female students are higher in reading, similar in mathematics, and lower in science as measured by the National Assessment of Educational Progress (NAEP). Females also have higher writing proficiency in fourth grade.⁵

Female-male differences in reading, mathematics, and science for 9-year-olds (in scale points)



SOURCE: NCES, National Assessment of Educational Progress.

Female-male achievement differences remain nearly unchanged at age 13. For example, in 1992, the average reading proficiency score for a 13-year-old female was 11 scale points higher than for a 13-year-old male, while females scored at about the same level in math and 4 scale points lower in science.

When 17-year-olds are assessed near the end of high school, female-male differences persist. For example, in 1992, average reading proficiency for females was 12 scale points higher than for males. This corresponds to about 40 percent of the difference between the average scores of 13- and 17-year-olds in 1992. In other words, the gap in reading proficiency between males and females is roughly equivalent to about one and a half years of schooling.

In mathematics and science, 17-year-old females score lower on average than males. In 1992, females scored 4 scale points lower than males on the NAEP mathematics assessment (roughly equivalent to about half a year of schooling), and 10 scale points lower on the science assessment (about a year's worth of science). Although both females and males have made gains in mathematics and science achievement since 1982, the gender gap for these subjects has not narrowed measurably.

Average Proficiency Scores

| Subject and year | Female | | | Male | | |
|---------------------|--------|--------|--------|-------|--------|--------|
| | Age 9 | Age 13 | Age 17 | Age 9 | Age 13 | Age 17 |
| Reading | | | | | | |
| 1975 | 216 | 262 | 291 | 204 | 250 | 280 |
| 1984 | 214 | 262 | 294 | 208 | 253 | 284 |
| 1992 | 215 | 265 | 296 | 206 | 254 | 284 |
| Mathematics | | | | | | |
| 1978 | 221 | 265 | 297 | 217 | 264 | 304 |
| 1986 | 222 | 268 | 299 | 222 | 270 | 305 |
| 1992 | 228 | 272 | 304 | 231 | 274 | 309 |
| Science | | | | | | |
| 1977 | 218 | 244 | 282 | 222 | 251 | 297 |
| 1986 | 221 | 247 | 282 | 227 | 256 | 295 |
| 1992 | 227 | 256 | 289 | 235 | 260 | 299 |

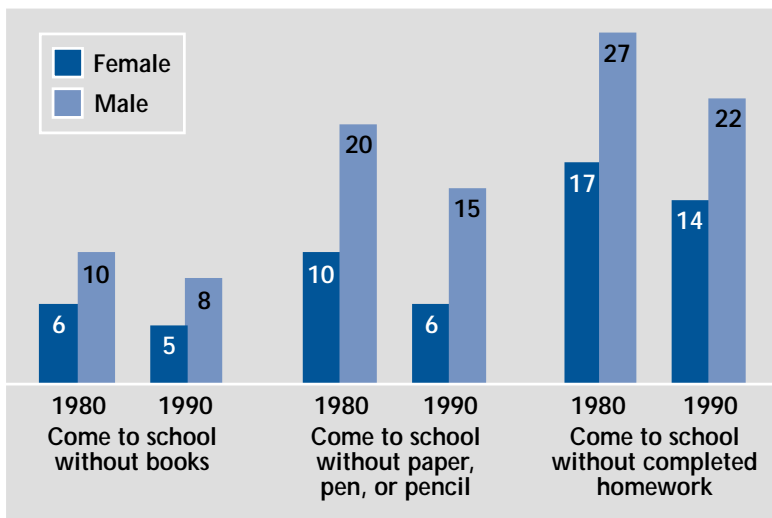
SOURCE: NCES, National Assessment of Educational Progress.

LEARNING ENVIRONMENT

- Females are more likely than males to come to school prepared to learn and to participate in school activities.

In 1990, high school sophomores arrived at school better prepared than their counterparts did a decade earlier. However, males were more likely than females to report that they usually or often came to school without books; a paper, pen, or pencil; or completed homework.

Percentage of high school sophomores who arrive at school unprepared



SOURCE: NCES, National Education Longitudinal Study of 1988, First Follow-up Student Survey, 1990.

Participation in extracurricular activities may affect academic performance, attachment to school, and social development, as well as provide opportunities for students to apply academic skills in other areas. Almost 83 percent of high school seniors in 1992 engaged in at least one extracurricular activity, with

females being more likely than males to participate in all types of activities except sports.

**Percentage of high school seniors
participating in extracurricular activities**

| | Female | Male |
|------------------------|--------|------|
| Any activity | 84 | 81 |
| Varsity sports | 28 | 44 |
| School music group | 25 | 15 |
| School play or musical | 17 | 14 |
| Yearbook or newspaper | 24 | 14 |
| Academic clubs | 27 | 23 |
| Student government | 18 | 13 |
| School service clubs | 17 | 10 |

SOURCE: NCES, National Education Longitudinal Study of 1988, Second Follow-up Student Survey, 1992.

- **Female students are no less likely than male students to have their parents involved in their education.**

Parents may be able to improve the academic performance of their children by becoming more involved in their school life. In 1988, eighth-grade females were more likely than their male peers to report talking to their parents about selecting courses, about their school activities, and about their class studies. Males and females were equally likely to have their parents review their homework, limit their television watching, limit their going out with friends, and visit their classes. Females were less likely than males to have had their parents speak with their teacher or guidance counselor. However, it is difficult to interpret this last finding without more specific information about these contacts.⁶

**Percentage of eighth-graders
reporting parent involvement: 1988**

| Type of involvement | Female | Male |
|------------------------------------|--------|------|
| Talked about: selecting classes | 89 | 82 |
| school activities | 93 | 89 |
| class studies | 91 | 86 |
| Checked homework | 89 | 91 |
| Limited T.V. viewing | 63 | 64 |
| Limited going out with friends | 90 | 88 |
| Spoke with teacher/counselor | 56 | 64 |
| Visited classes | 28 | 29 |

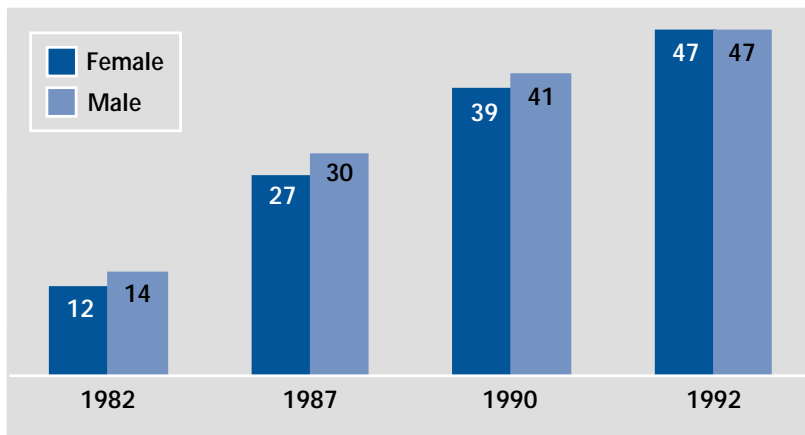
SOURCE: NCES, National Education Longitudinal Study of 1988, Base Year Survey, 1988.

CURRICULUM

- **Both female and male students are following a more rigorous curriculum than they were a decade ago.**

Between 1982 and 1992, the percentage of high school graduates earning the 4 units of English and the 3 units each of science, social studies, and mathematics recommended in *A Nation At Risk* increased sharply, from 13 to 47 percent. While course taking increased for both genders through 1992, there was no measurable difference between the percentage of female and male graduates completing these recommended courses.

Percentage of high school graduates taking the number of courses in English, science, social studies, and mathematics recommended in *A Nation At Risk*



SOURCE: NCES, High School and Beyond Transcript Study; 1987 and 1990 NAEP High School Transcript Studies; and National Education Longitudinal Study Transcripts, 1992.

In 1992, female and male high school graduates on average earned a similar number of total course units (24 credits). Females took more credits in academic subjects than males (18 versus 17 credits), whereas in the class of 1969, males and females took similar numbers of academic credits (15 each).⁷

- Female students are as likely as males to take advanced math and science courses, and are more likely to study a foreign language.

Between 1982 and 1992, the percentage of both female and male graduates who took advanced mathematics and science courses in high school increased, although for many subjects gender parity had been attained by 1982. In the class of 1992, females were less likely than males to take remedial mathematics in high

school, more likely to take Algebra II, and just as likely to take calculus. With respect to science, females were more likely than males to take biology, and just as likely to take chemistry. Females were less likely, however, to take physics.

**Percentage of high school graduates taking
selected mathematics and science courses**

| Mathematics and science courses | 1982 | | 1992 | |
|------------------------------------|-------------|------|--------|------|
| | Female | Male | Female | Male |
| | Mathematics | | | |
| Remedial mathematics | 30 | 36 | 15 | 20 |
| Geometry | 49 | 48 | 72 | 69 |
| Algebra II | 36 | 38 | 58 | 54 |
| Trigonometry | 11 | 13 | 21 | 21 |
| Calculus | 4 | 5 | 10 | 10 |
| | Science | | | |
| Biology | 81 | 77 | 94 | 92 |
| Chemistry | 31 | 32 | 57 | 54 |
| Physics | 9 | 18 | 21 | 28 |
| Biology, chemistry, and physics | 7 | 13 | 19 | 24 |

SOURCE: NCES, *The 1990 High School Transcript Study Tabulations*, 1993 (based on the High School and Beyond Transcript Study and the National Education Longitudinal Study Transcripts, 1992).

In 1992, college-bound female high school graduates were more likely than male graduates to study a foreign language for at least 2 years in high school (78 versus 67 percent). In addition, females were more than twice as likely as males to take 4 years of a foreign language (19 versus 9 percent).⁸

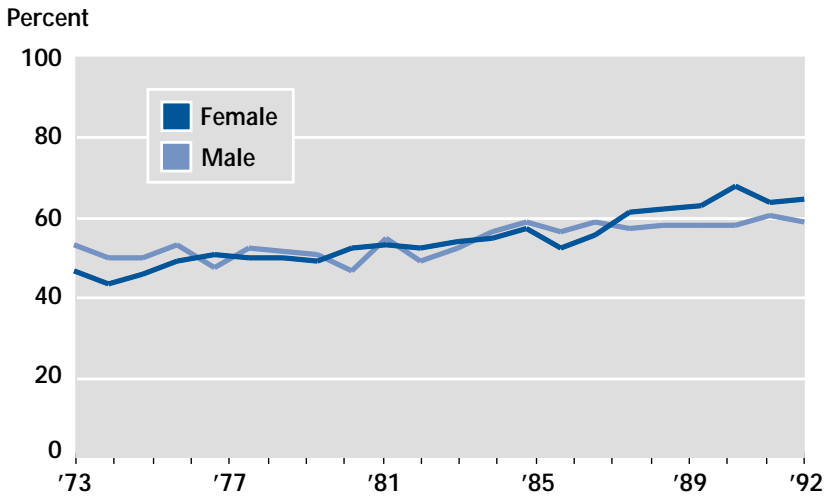
POSTSECONDARY EDUCATION

ENROLLMENT

- Females are slightly more likely than males to make an immediate transition from high school to college.

Between 1976 and 1987, females and males were equally likely to enroll in college in the fall following high school graduation; however, since the late 1980s, women have been slightly more likely than men to do so.

Percentage of high school graduates enrolled in college the October following high school graduation



SOURCE: U.S. Department of Commerce, Bureau of the Census, October Current Population Surveys.

Furthermore, women are more likely than men to enroll in a 4-year college after graduation from high school. In 1993, the enrollment rate for women at 4-year institutions was 42 percent, compared to 36 percent for men. Women and men were equally likely to enroll in 2-year institutions after high school graduation (22 percent).⁹

In 1992, the majority of students enrolled in undergraduate and graduate programs were women, although more men were enrolled in first-professional programs, such as medicine, law, or dentistry.¹⁰

COMPLETION

- Over the past 20 years, college attainment rates among young females have increased dramatically, while rates for males have remained basically unchanged.

In the 1970s, female high school graduates aged 25–29 were less likely than their male peers to have completed 1 or more years of college. This trend reversed in the early 1990s, as a greater percentage of graduating high school females began attending postsecondary institutions.

Percentage of 25- to 29-year-old high school graduates completing various amounts of college

| Year | 1 or more years | | 4 or more years | |
|------|----------------------|------|---------------------------|------|
| | Female | Male | Female | Male |
| 1971 | 38 | 49 | 18 | 26 |
| 1976 | 46 | 58 | 24 | 32 |
| 1981 | 48 | 53 | 23 | 27 |
| 1986 | 51 | 51 | 25 | 27 |
| 1991 | 54 | 52 | 27 | 27 |
| | Some college or more | | Bachelor's degree or more | |
| 1992 | 57 | 56 | 28 | 27 |
| 1994 | 62 | 59 | 27 | 27 |

NOTE: Beginning in 1992, the Current Population Survey changed the questions it used to obtain the educational attainment of respondents.

SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Surveys.

A similar trend has occurred for female college graduates. In the early 1970s, among high school graduates, about 20 percent of women compared to about 27 percent of men aged 25–29 had completed 4 or more years of college. By 1994, a similar percentage of men and women in this age group had earned a bachelor’s degree or more.

Data on the number of degrees conferred demonstrate even more clearly the educational progress of women relative to men. In 1992, women earned more associate’s, bachelor’s, and master’s degrees than men, whereas in 1977 the reverse was true. Though fewer doctoral and first-professional degrees were awarded to women than to men in 1992, the gap has narrowed considerably over time. For example, the percentage of first-professional degrees earned by women rose dramatically between 1960 and 1993: from 2 percent to 42 percent of all law degrees; from 6 percent to 38 percent of all medical degrees; and from 1 percent to 34 percent of all dentistry degrees.¹¹

**Earned degrees conferred by institutions of higher education
(numbers in thousands)**

| | 1977 | | 1992 | |
|--------------------|--------|-------|--------|-------|
| | Female | Male | Female | Male |
| Associate’s | 195.5 | 210.8 | 296.8 | 207.5 |
| Bachelor’s | 424.0 | 495.5 | 615.7 | 520.8 |
| Master’s | 149.4 | 167.8 | 191.0 | 161.8 |
| Doctoral | 8.1 | 25.1 | 15.1 | 25.6 |
| First-professional | 12.0 | 52.4 | 29.1 | 45.1 |

SOURCE: *Digest of Education Statistics, 1994*, table 234.

- Women and men still tend to study different fields in college, although differences have narrowed for undergraduates and in some fields for graduates.

Similarities in the mathematics and science course taking (except for physics) of women and men in high school disappear when examining college transcripts. Among 1985–86 bachelor’s degree recipients, women were much less likely than men to have taken courses in the physical sciences, mathematics, computer science, and engineering, but were more likely to have taken courses in the life sciences. In the social and behavioral sciences, women were more likely than men to have taken psychology and sociology, and were less likely to have taken political science and economics.¹²

Differences in the college course-taking patterns of men and women are related to the fields in which they choose to major. At the bachelor’s level, women were about three times as likely as men to graduate with degrees in education in 1991–92, although this represents a decline from 1971. Women were also more likely than men to major in English, modern foreign languages, communications, psychology, and the health sciences.

Percentage distribution of bachelor’s degrees earned by women and men, by field

| Major field | 1972 | | 1992 | |
|--------------------------|--------|------|--------|------|
| | Female | Male | Female | Male |
| Total | 100 | 100 | 100 | 100 |
| Biological/life sciences | 3 | 5 | 4 | 4 |
| Business | 3 | 22 | 20 | 26 |
| Communications | 1 | 2 | 5 | 4 |
| Computer science | 0 | 1 | 1 | 3 |
| Education | 37 | 10 | 14 | 4 |
| Engineering | 0 | 10 | 2 | 13 |
| English | 11 | 5 | 6 | 4 |
| Modern foreign languages | 4 | 1 | 2 | 1 |
| Health sciences | 6 | 1 | 8 | 2 |
| Mathematics | 2 | 3 | 1 | 2 |
| Physical sciences | 1 | 4 | 1 | 2 |
| Psychology | 5 | 5 | 8 | 3 |
| Social sciences | 15 | 20 | 10 | 14 |
| Other | 13 | 13 | 19 | 18 |

SOURCE: *Digest of Education Statistics, 1994*, tables 268–285.

Although the differences between men and women are decreasing in the biological/life sciences and business, women are still less likely than men to major in these fields. Moreover, women continue to be less likely than men to major in mathematics, engineering, the physical sciences, computer sciences, and social sciences.¹³

At the graduate level, the tendency of women and men to choose different fields of study has declined in many major fields. For example, differences in the proportions of women and men earning master's degrees in the life sciences, physical sciences, computer science, and engineering have narrowed over time. Differences in the proportions of men and women earning master's degrees in business management decreased between the early 1970s and the mid-1980s, when the trend leveled off. Moreover, differences in the proportion of men and women earning master's degrees in the humanities and social sciences have disappeared.

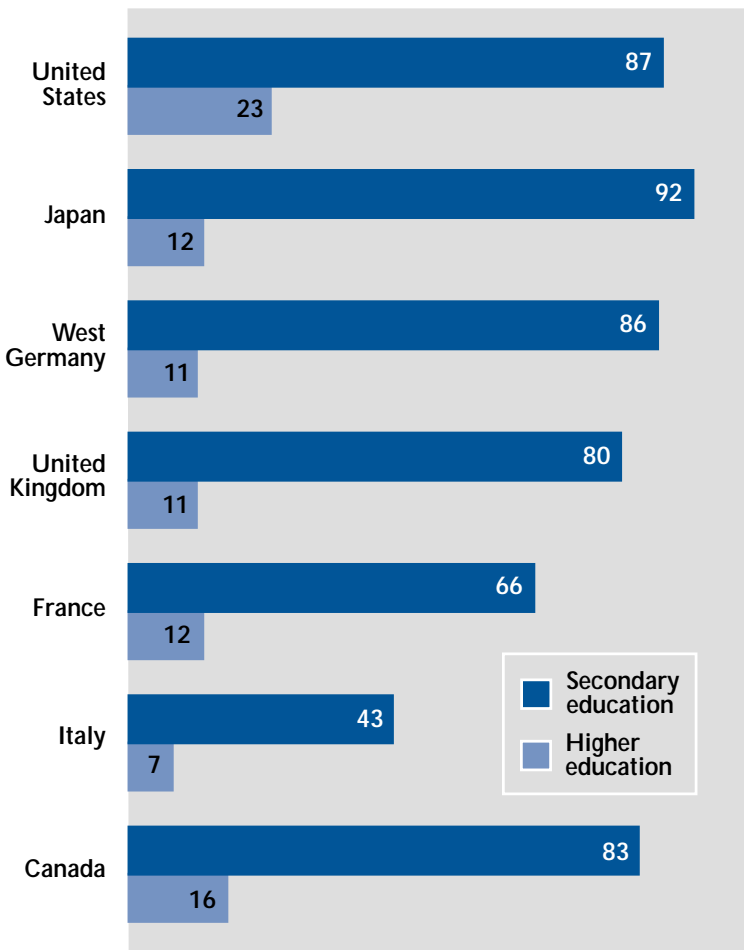
However, in some fields of study, large gaps do remain. For instance, at the master's degree level, women were almost three times as likely as men to earn graduate degrees in education and the health professions, but only about one-seventh as likely to earn degrees in engineering.¹⁴

- **Females in the United States generally have higher educational attainment than their counterparts in other countries.**

Among U.S. women 25–64 years old in 1992, 84 percent had completed high school—far more than their counterparts in Japan, West Germany, the United Kingdom, France, Italy, and Canada. However, in several countries the educational attainment of younger generations of women is increasing rapidly.¹⁵ As a result, the gap is closing between the educational attainment of women in these countries and the United States.

Women 25–34 years old in the United States are still much more likely to complete higher education than their counterparts in Japan and West Germany. Moreover, in 1987 the percentage of women who were awarded university degrees in science and engineering fields was much higher in the United States than in other highly industrialized countries, including Japan and West Germany.¹⁶

Percentage of 25- to 34-year-old females completing secondary and higher education in 1992



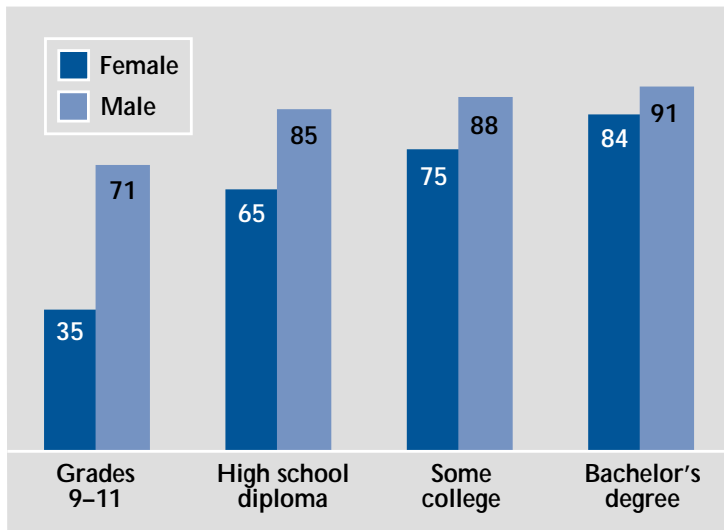
SOURCE: OECD, Indicators of Education Systems, *OECD Education Statistics, 1985–1992*.

LABOR MARKET OUTCOMES

- Employment and earnings rates rise with educational attainment for both females and males, but earnings are lower for females than for males with the same education.

The gap between the employment rates for women and men narrows with increasing levels of educational attainment. For example, in 1994, the difference between the employment rates of 25- to 29-year-old females and males was 20 percentage points for high school graduates and 7 percentage points for college graduates.

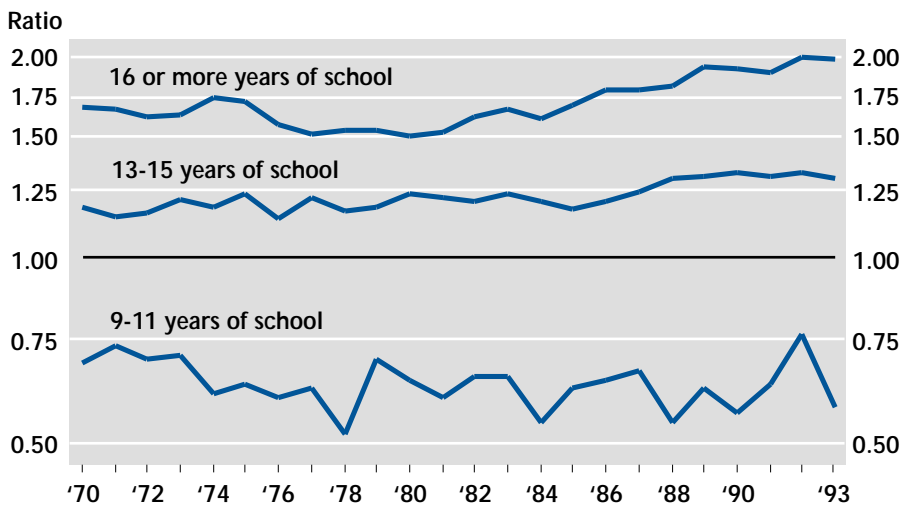
**Percentage of females and males
25–29 years old who were employed in 1994,
by educational attainment**



SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Surveys, 1994.

Female college graduates shared in the increased earnings of all college graduates in the 1980s. Although female 4-year college graduates earned less on average than male college graduates in 1993 (\$26,000 and \$32,700, respectively), the earnings advantage that female college graduates enjoy over female high school graduates is greater than that enjoyed by males.¹⁷ Females with college degrees realized an earnings advantage over female high school graduates that has increased between 1981 and 1993.

Median annual earnings of females 25–34 years old with different amounts of education relative to those with 12 years of school



NOTE: One (1.0) on the scale represents earnings equal to those with 12 years of school; 2.0 represents double their earnings; 0.5 represents half their earnings. The scale on the graph makes the distance between 1.0 and 2.0, or doubling, the same as that between 1.0 and 0.5, or halving.

SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Surveys.

SUMMARY

In summary, women have made important advances in education over the last few decades, closing the gender gap in educational attainment among younger women that existed 20 years ago. In high school, females read and write better than males, although they perform worse in mathematics and science. The mathematics and science courses that females and males take in high school are similar, with the exception that females are less likely than males to study physics. Moreover, females are more likely than males to go to college immediately after high school and are just as likely to earn degrees. Although females tend to major in different subjects than males in college, many of these differences have narrowed over time. But despite large gains in educational attainment and labor force participation, significant differences in earnings persist between females and males, even at similar levels of education.

REFERENCES

¹*The Condition of Education, 1995*, 94, based on NCES, National Adult Literary Survey, 1992.

²*The Condition of Education, 1993*, 20, based on U.S. Department of Commerce, Bureau of the Census, October Current Population Surveys, unpublished tabulations.

³*The Condition of Education, 1994*, 176, based on U.S. Department of Commerce, Bureau of the Census, October 1992 Current Population Survey.

⁴*The Condition of Education, 1995*, 347, based on U.S. Department of Education, Office for Civil Rights, *National Summaries from the Elementary and Secondary School Civil Rights Survey*, various years.

⁵*The Condition of Education, 1995*, 56, based on National Assessment of Educational Progress, *Trends in Academic Progress: Achievement of U.S. Students in Science, 1969 to 1992; Mathematics, 1973 to 1992; Reading, 1971 to 1992; Writing, 1984 to 1992*, 1994.

⁶*The Condition of Education, 1994*, 124, based on NCES, National Education Longitudinal Study of 1988.

⁷*The Condition of Education, 1994*, 72, based on NCES, National Education Longitudinal Study, 1992.

⁸*The Condition of Education, 1994*, 78, based on NCES, High School and Beyond Transcript Study, National Education Longitudinal Study Transcripts, 1992.

⁹*The Condition of Education, 1995*, 194, based on U.S. Department of Commerce, Bureau of the Census, October Current Population Surveys.

¹⁰*Digest of Education Statistics, 1994*, table 234. For first-professional degrees by type of program, see tables 249, 263, and 264.

¹¹*Digest of Education Statistics, 1994*, table 249.

¹²*The Condition of Education, 1994*, 82, based on NCES, 1987 Survey of Recent College Graduates (Transcript Data File).

¹³*Digest of Education Statistics, 1994*, tables 239 and 240.

¹⁴*Digest of Education Statistics, 1994*, tables 268–285.

¹⁵*The Condition of Education, 1995*, 74, based on Organization for Economic Co-Operation and Development, Indicators of Education's Systems, *Digest of International Education Statistics*, forthcoming.

¹⁶*The Condition of Education, 1991*, vol. 2, 36, based on UNESCO *Statistical Yearbook, 1989* and earlier editions; *Digest of Education Statistics, 1989*; and U.S. Department of Commerce, Bureau of the Census, unpublished tabulations.

¹⁷U.S. Department of Commerce, Bureau of the Census, March Current Population Surveys.

For more information, see the following NCES publications:

The Condition of Education, 1995. Washington, D.C.: 1995.

The Condition of Education, 1994. Washington, D.C.: 1994.

Digest of Education Statistics, 1994. Washington, D.C.: 1994.

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No. 2: *The Educational Progress of Black Students*

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