DOCUMENT RESUME

ED 038 523 VT 010 735

TITLE	Progress of Public Education in the United States of America 1967-1968.
INSTITUTION	Office of Education (DHEW), Washington, D.C.
REPORT NO	OE-10005-68A
PUB DATE	68
NOTE	47p.; Report for the International Conference on Public Education, Sponsored by the United Nations Educational, Scientific and Cultural Organization and the International Bureau of Education (31st, Geneva, Switzerland, July 1-11, 1968)
AVAILABLE FROM	Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (FS5.210:10005-68A, $.50)
EDRS PRICE	EDRS Price MF-$0.25 HC Not Available from EDRS.
DESCRIPTORS	Area Vocational Schools, Educational Experience, *Educational History, Federal State Relationship, *Public Education, Secondary Schools, Statistical Data, *Vocational Education
IDENTIFIERS	*United States

ABSTRACT

This report provides an overview of the developments in public elementary and secondary schools. Part I examines significant changes which have occurred in enrollments, teacher supply, pupil retention and achievement, and financial support. In 1967, education was the primary occupation of 60 million Americans. About 57 million of these were students and 3 million were teachers, principals, supervisors, and superintendents. Only 2.4 percent of the persons 14 years of age or older were illiterate in 1960 compared to 3.3 percent in 1950 and 11.3 percent in 1900. In the 1965-66 school year, 53 percent of the revenues came from local sources, 39 percent from State governments, and 8 percent from the Federal Government. Part II focuses on programs and changes in vocational and technical education. Since the passage of the first vocational education act in 1918, enrollment in vocational education programs has risen from 164,200 to 7,800,000 in 1968. Although some vocational education is provided in secondary schools, the number of area vocational schools has increased rapidly. In 1967, there were 1,100 area schools and 1,000 more are expected to be constructed during the next 10 years. (BC)

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PROGRESS OF PUBLIC EDUCATION IN THE UNITED STATES OF AMERICA 1967-1968

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Report for the Thirty-First International Conference on Public Education,
Sponsored by the United Nations Educational, Scientific and Cultural Organization
and the International Bureau of Education
July 1–11, 1968, Geneva

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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THE STRUCTURE OF EDUCATION IN THE UNITED STATES

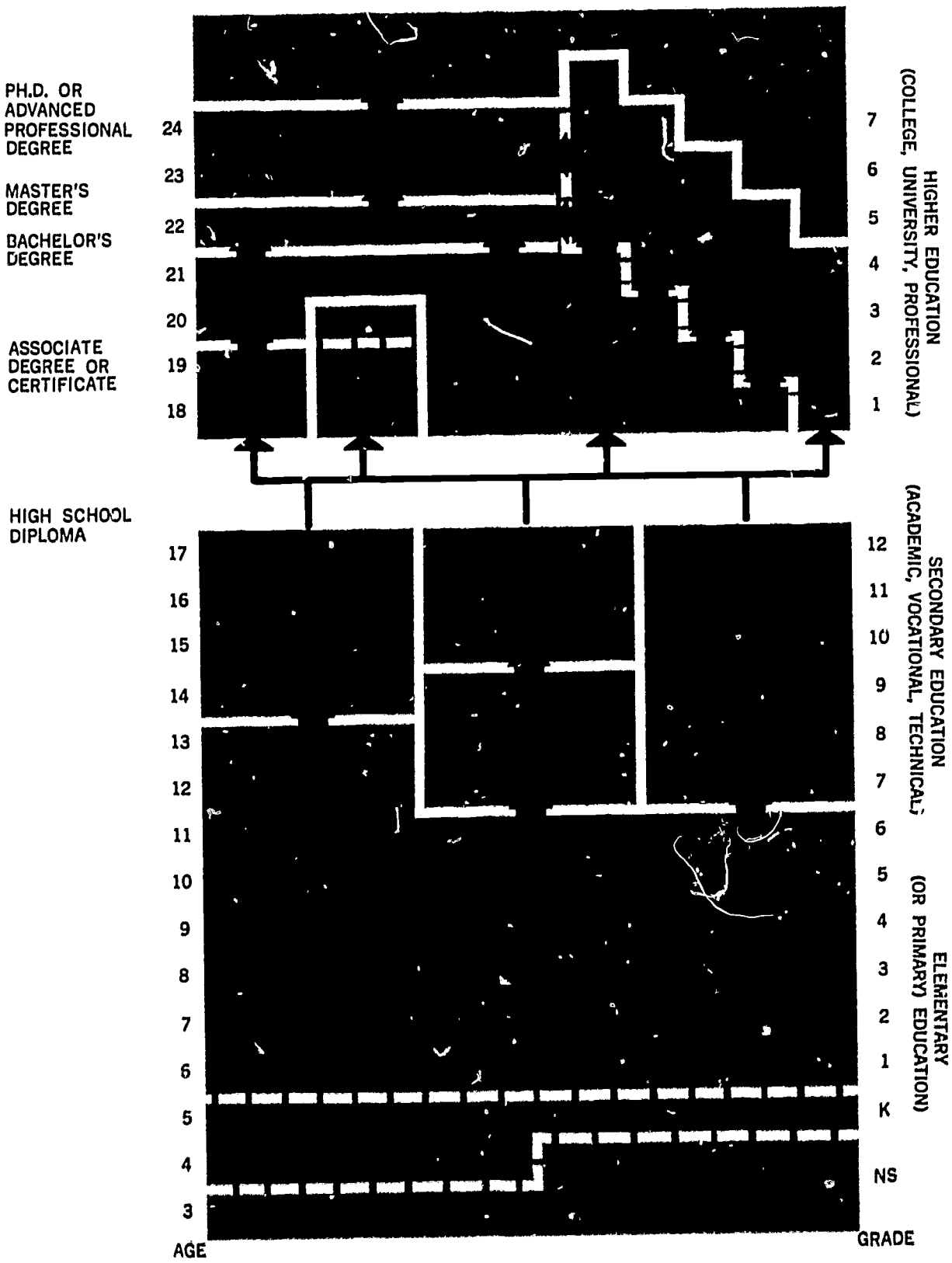


FIGURE 1

INTRODUCTION

Education in the United States is designed to serve the needs of all, from the preschool child to the senior citizen, from the disadvantaged child to the most fortunately endowed. While State, local, and private agencies bear the major responsibility for education, the Federal Government is traditionally called upon to participate in a variety of programs basic to its improvement. Within the Federal structure, the Office of Education is the agency with the primary concern for education.

Progress of Public Education in the United States of America 1967-68, prepared by the Office of Education, provides an overview of recent developments in public elementary and secondary schools. Part I of the report highlights significant changes which have occurred in the growth of enrollments, teacher supply, retention and achievement of pupils, and financial support.

Although a system of free public education has been universally available to the youth of the Nation for well over a century, new goals will be set as the 21st century approaches. Startling changes in science and technology have already decreed rapid revision in programs for secondary education. Innovations in vocational and technical education reflect the impact of the technological revolution in progress. Part II of the Progress Report concerns the nature of the changes in vocational and technical education which have been designed to prepare youth and adults to find their place in the world of work.

Changes before the year 2000 are expected to wipe out hundreds of occupations that exist today. As some fields of work are displaced there will be created hundreds of new occupations which require new knowledge and skills. Facing this challenge, the schools of the Nation are engaged in planning to prepare youth for the widest possible variety of occupations to support the scientific advances and to supply the manpower required. In addition there is a growing emphasis on continuing education to enable youths and adults now employed to continue their education in order to update skills and provide for advancement in their occupational fields.

The trends described in the report illustrate the need for revision and adjustments in many areas of education. They point to the concept of education as an instrument of change, and to the need for constant evaluation and redirection of its programs to undergird and stimulate progress.

PART I
General Statistics on Education

AN OVERVIEW

Education was the primary occupation of 60 million Americans in the fall of 1967. Included in this total were more than 57 million students and nearly 3 million teachers, supervisors, principals, and superintendents. This means that, in a Nation of 198 million, more than three out of every 10 persons were directly involved in the educational process. It is not surprising, therefore, that so much attention is being focused upon schools and colleges and that a substantial portion of the resources is being allocated to this vital enterprise. Increased support for education in recent years has come from Federal, State, and local governments, as well as from a variety of private sources.

ENROLLMENT

In the fall of 1967, enrollment in educational institutions in the United States increased for the 23d consecutive year and reached another all-time high. The number of students in public and nonpublic institutions at all educational levels totaled 57.3 million (table 1). This total was 2.7 percent higher than the 55.8 million students enrolled 1 year earlier. The largest increase over the preceding year (9.3 percent) occurred at the higher education level. Enrollment in kindergarten through grade 8 rose 1.3 percent, while that in grades 9 through 12 increased 3.4 percent.

Since the end of World War II a dominant trend in this country has been for more and more persons to enter the educational system at an earlier age and to remain in school for a longer period of time than their older brothers and sisters. This trend is illustrated most dramatically if we compare the latest available data on the percentage of 5-year-olds and teenagers enrolled in school with the comparable percentages one and two decades ago (table 2). More than seven out of every ten 5-year-olds currently attend school as compared with fewer than six out of 10 in the 1940's and early 1950's. Seven-eighths of our 16- and 17-year-olds are now enrolled in school; in 1957, four-fifths were enrolled; and in 1947, only two-thirds were in school. Close to one-half of our 18- and 19-year-olds are still in school as compared with one-third of their counterparts in 1957 and one-fourth in 1947.

Another indication of the same phenomenon is provided by table 3, which shows the growth of secondary education in the United States. From 1890 to 1967, while the population 14 to 17 years of age rose little more than 2½ times, enrollment in grades 9 through 12 increased 38 times. In 1890 only about one person in 15 in the 14–17 age group was enrolled in school; in 1967 the figure was more than nine out of 10.

For half a century the Federal Government has assisted State and local governments in providing vocational education programs. In recent years new programs have been added to the traditional classes in agriculture, home economics, and trades and industry; the number of participants has increased at a rapid rate. More than 6 million students were enrolled in federally aided vocational classes in 1966 (table 4).

INSTRUCTIONAL STAFF

As enrollment increases in the United States, there is a demand for more and more teachers at all educational levels. Between the fall of 1966

and 1967, the total teaching staff increased from 2.5 to 2.6 million, a rise of 4.7 percent (table 5).

In recent years the number of public elementary and secondary school teachers has risen at a faster rate than the number of pupils enrolled. Consequently, there has been a slight decline in the number of pupils per teacher. As table 6 indicates, there were 23.7 pupils per teacher in 1967 as compared with 25.7 pupils per teacher 5 years earlier.

GRADUATES

Paralleling the increase in school enrollment is a corresponding rise in the number and proportion of persons graduating from high school and college. As recently as 1890, only 3.5 percent of the young people were graduating from high school. That year may be compared with the year 1967, when there were 2,650,000 graduates, a number equal to more than 75 percent of the 17-year-olds in the population (table 7). At the college level the contrast is even greater: The number of bachelor's degrees in 1967 was more than 36 times as great as in 1890, and the number of master's and doctoral degrees both increased more than a hundredfold (table 8).

The number of earned degrees conferred by institutions of higher education in the year ending in June 1966 is shown in table 9. At the bachelor's level more degrees were conferred in education, social sciences, and business and commerce than in any other field. A large number of bachelor's degrees were also conferred in languages and literature (both English and foreign languages), engineering, biological and physical sciences, mathematics, and fine and applied arts. The leading fields in terms of the number of master's degrees conferred were education, social sciences, and engineering. More than 2,000 doctoral degrees were conferred in each of five fields: Education, physical sciences, engineering, social sciences, and biological sciences.

SCHOOL RETENTION RATES AND EDUCATIONAL ATTAINMENT

Table 10 shows the increase in school retention rates from the fifth grade through college entrance over the past third of a century. During this period the proportion of fifth graders who went on to graduate from high school increased 139 percent: about 72 percent of our former fifth graders graduated from high school in 1967, as compared with 30 percent in 1932. The increase in college attendance is even more striking: Approximately 40 percent of our young people now enter college; a generation ago the comparable figure was 12 percent. Retention rates for the high school graduating class of 1967 are shown graphically in figure 2.

Since 1940 the U.S. Bureau of the Census has collected statistics on the educational attainment of the population in this country. Table 11, which is derived from census publications, compares the educational attainment of the population 25–29 years of age with the total population 25 years of age and over. The former group in March 1966 had completed one-half year of school more than had the total adult population. More than seven-tenths of the 25–29 age group were high school graduates, as compared with only one-half of all adults. Almost one-seventh of the 25- to 29-year-olds were college graduates, while only about one person in 10 in the total population had completed his college education. Trends in the educational

attainment of the adult population over the past two decades are shown graphically in figure 3.

Only 2.4 percent of the persons 14 years of age and over were illiterate in 1960 (table 12). This illiteracy rate may be compared with that of 3.3 percent in 1950, 4.8 percent in 1930, and 11.3 percent in 1900. Thus the 20th century has seen a steady reduction in the percentage of persons in this country who are unable to read and write.

INCOME

Public elementary and secondary schools in the United States derive virtually all of their revenue from governmental sources. Income from other sources, such as gifts and fees, amounts to less than one-half of 1 percent of the total revenue receipts. Local governments contribute more than any other source, but in recent years the proportions from the Federal and State Governments have been increasing. In the school year 1965–66 approximately 53 percent of the revenue receipts of public schools came from local sources, 39 percent from State governments, and 8 percent from the Federal Government (table 13 and fig. 4). The Federal contribution, between 1963–64 and 1965–66, rose from about $900 million to $2 billion.

Although State and local governments have the primary responsibility for public education in the United States, the Federal Government for many years has maintained an active interest in the educational process. Recently an increasing amount of Federal support for all levels of education has been provided through a variety of programs administered by a number of Government agencies. Federal grants supporting education in educational institutions, for example, rose 80 percent between the fiscal years 1965 and 1966. Table 14 presents a summary of Federal funds for education, training, and related activities for the past 2 years.

EXPENDITURES

Expenditures for public elementary and secondary education in the United States amounted to $26.2 billion during the school year 1965–66 and to an estimated $31.5 billion in 1967–68 (table 15). The total annual expenditure per pupil in average daily attendance rose from $652 in 1965–66 to an estimated $750 in 1967–68. These figures may be compared with an expenditure of $449 a decade ago.

According to the latest available figures on expenditures by purpose, public schools are expending approximately 55 percent of their funds for instruction and 14 percent for capital outlay. The remaining 31 percent is spent for a variety of purposes, including administration, plant operation and maintenance, fixed charges, other school services, and interest on school debt.

Table 16 and figure 5 compare total expenditures for all levels of public and private education in the United States with the gross national product over the past four decades. Educational expenditures totaled approximately $45 billion during the school year 1965–66, an amount equal to about 6.6 percent of the gross national product. Preliminary estimates indicate that educational expenditures may have reached $52 billion in 1967–68. In relation to the gross national product, expenditures today are more than three times as great as they were during the middle 1940's.

Expenditures for vocational education from Federal, State, and local funds are shown in

table 17. In 1965–66, the Federal Government contributed 29 percent of the funds, the State governments, 27 percent; and the local governments, 44 percent. Total expenditures for vocational education have more than quadrupled in the past decade.

INTERNATIONAL EDUCATION

Table 18 shows the number of participants in international education programs administered by the Office of Education—the Teacher Development Program, the Teacher Exchange Program, and the Technical Assistance Program. Programs of the Federal Government represent only a fraction of the activities of the United States in the field of international education. This field embraces not only the students and teachers from abroad who come here each year, but also thousands of persons from the United States who go overseas each year to study, teach, and do research.

The number of students from abroad enrolled in institutions of higher education in the United States rose from 58,000 in 1961–62 to more than 100,000 in 1966–67, an increase of well over 70 percent (table 19). The fields in which the largest number of these students were enrolled in 1966–67 were engineering, humanities, physical and natural sciences, and social sciences. In the same year 34 percent of the overseas students came from the Far East, 18 percent from Latin America, 14 percent from Europe, 13 percent from the Near and Middle East, and the remaining 21 percent from various other parts of the world.

Definitive figures on the number of Americans studying overseas are not available. However, the Institute of International Education in New York has reported that at least 24,900 Americans were attending institutions of higher education abroad in 1965–66. The Institute has also reported that over 10,700 faculty members, researchers, and scholars from overseas were in residence at institutions of higher education in the United States in 1966–67 and that nearly 4,700 American faculty members were abroad in the same year.

General trends and developments in United States education have been highlighted in the text of the report, Part I. Detailed information is presented in the statistical tables and figures which follow.

STATISTICS

TABLE 1 FALL ENROLLMENT IN EDUCATIONAL INSTITUTIONS, BY GRADE LEVEL AND TYPE OF SCHOOL: UNITED STATES, FALL 1966 AND 1967

Grade level and type of school	Fall 1966	Fall 1967	Percentage increase, 1966 to 1967
Total, elementary, secondary, and higher education	55,802,000	57,287,000	2.7
Kindergarten through grade 8	36,557,000	37,040,000	1.3
Public school systems (regular full-time)	31,157,000	31,640,000	1.6
Nonpublic schools (regular full-time)	5,200,000	5,200,000	0
Other schools [1]	200,000	200,000	0
Grades 9 through 12	13,298,000	13,747,000	3.4
Public school systems (regular full-time)	11,898,000	12,247,000	2.9
Nonpublic schools (regular full-time)	1,300,000	1,400,000	7.7
Other schools [1]	100,000	100,000	0
Kindergarten through grade 12	49,855,000	50,787,000	1.9
Public school systems (regular full-time)	43,055,000	43,887,000	1.9
Nonpublic schools (regular full-time)	6,500,000	6,600,000	1.5
Other schools [1]	300,000	300,000	0
Higher education: universities, colleges, professional schools, junior colleges, normal schools, and teachers colleges (degree-credit enrollment)	5,947,000	6,500,000	9.3

[1] Includes federally operated schools, subcollegiate departments of institutions of higher education, and residential schools for exceptional children.

Note.—All figures, except those for public elementary and secondary schools, are estimated. Fall enrollment is usually smaller than school-year enrollment, since the latter is a cumulative figure which includes students who enroll at any time during the year.

SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education, surveys and estimates of the National Center for Educational Statistics.

TABLE 2 PERCENT OF THE POPULATION 5 TO 34 YEARS OLD ENROLLED IN SCHOOL, BY AGE: UNITED STATES, OCTOBER 1947 TO 1966

Year	Total, 5 to 34 years	5 years [1]	6 years [1]	7 to 9 years	10 to 13 years	14 and 15 years	16 and 17 years	18 and 19 years	20 to 24 years	25 to 29 years	30 to 34 years
1	2	3	4	5	6	7	8	9	10	11	12
1947	42.3	53.4	96.2	98.4	98.6	91.6	67.6	24.3	10.2	3.0	1.0
1948	43.1	55.0	96.2	98.3	98.0	92.7	71.2	26.9	9.7	2.6	.9
1949	43.9	55.1	96.2	98.5	98.7	93.5	69.5	25.3	9.2	3.8	1.1
1950	44.2	51.8	97.0	98.9	98.6	94.7	71.3	29.4	9.0	3.0	.9
1951	45.4	53.8	96.0	99.0	99.2	94.8	75.1	26.3	8.3	2.5	.7
1952	46.8	57.8	96.8	98.7	98.9	96.2	73.4	28.7	9.5	2.6	1.2
1953	48.8	58.4	97.7	99.4	99.4	96.5	74.7	31.2	11.1	2.9	1.7
1954	50.0	57.7	96.8	99.2	99.5	95.8	78.0	32.4	11.2	4.1	1.5
1955	50.8	58.1	98.2	99.2	99.2	95.9	77.4	31.5	11.1	4.2	1.6
1956	52.3	58.9	97.0	99.4	99.2	96.9	78.4	35.4	12.8	5.1	1.9
1957	53.6	60.2	97.4	99.5	99.5	97.1	80.5	34.9	14.0	5.5	1.8
1958	54.8	63.8	97.3	99.5	99.5	96.9	80.6	37.6	13.4	5.7	2.2
1959	55.5	62.9	97.5	99.4	99.4	97.5	82.9	36.8	12.7	5.1	2.2
1960	56.4	63.7	98.0	99.6	99.5	97.8	82.6	38.4	13.1	4.9	2.4
1961	56.8	66.3	97.4	99.4	99.3	97.6	83.6	38.0	13.7	4.4	2.0
1962	57.8	66.8	97.9	99.2	99.3	98.0	84.3	41.8	15.6	5.0	2.6
1963	58.5	67.8	97.4	99.4	99.3	98.4	87.1	40.9	17.3	4.9	2.5
1964	58.7	68.5	98.2	99.0	99.0	98.6	87.7	41.6	16.8	5.2	2.6
1965	59.7	70.1	98.7	99.3	99.4	98.9	87.4	46.3	19.0	6.1	3.2
1966	60.0	72.8	97.6	99.3	99.3	98.6	88.5	47.2	19.9	6.5	2.7

[1] Includes children enrolled in kindergarten.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "Current Population Reports," Series P-20, No. 162 and No. 167.

TABLE 3 ENROLLMENT IN GRADES 9–12 OF PUBLIC AND NONPUBLIC SCHOOLS COMPARED WITH POPULATION 14–17 YEARS OF AGE: UNITED STATES, 1889–90 TO FALL 1967

School year	Enrollment, grades 9–12 and postgraduate [1]			Population 14–17 years of age [2]	Total number enrolled per 100 persons 14–17 years of age
	All schools	Public schools	Nonpublic schools		
1889–90	359,949	[3] 202,963	[3] 94,931	5,354,653	6.7
1899–1900	699,403	[3] 519,251	[3] 110,797	6,152,231	11.4
1909–10	1,115,398	[3] 915,061	[3] 117,400	7,220,298	15.4
1919–20	2,500,176	[3] 2,200,389	[3] 213,920	7,735,841	32.3
1929–30	4,804,255	[3] 4,399,422	[3] [4] 341,158	9,341,221	51.4
1939–40	7,123,009	6,635,337	487,672	9,720,419	73.3
1949–50	6,453,009	5,757,810	695,199	8,404,768	76.8
1951–52	6,596,351	5,917,384	678,967	[5] 8,516,000	77.5
1953–54	7,108,973	6,330,565	778,408	[5] 8,861,000	80.2
1955–56	7,774,975	6,917,790	857,185	[5] 9,207,000	84.4
1957–58	8,869,186	7,905,469	963,717	[5] 10,139,000	87.5
1959–60	9,599,810	8,531,454	1,068,356	11,154,879	86.1
1961–62	10,768,972	9,616,755	1,152,217	[5] 12,006,000	89.7
Fall 1963	12,255,496	10,935,536	1,319,960	[5] 13,499,000	90.8
Fall 1965 [6]	13,010,000	11,670,000	1,340,000	[5] 14,110,000	92.2
Fall 1967 [6]	13,750,000	12,310,000	1,440,000	[5] 14,605,000	94.1

[1] Unless indicated, includes enrollment in subcollegiate departments of institutions of higher education and in residential schools for exceptional children. Beginning in 1949–50, also includes Federal schools.
[2] Includes all persons residing in the United States, but excludes Armed Forces overseas. Data shown are actual figures from the decennial censuses of population unless otherwise indicated.
[3] Excludes enrollment in subcollegiate departments of institutions of higher education and in residential schools for exceptional children.
[4] Data for 1927–28.
[5] Estimated by the Bureau of the Census as of July 1 preceding the opening of the school year.
[6] Preliminary data.

Note.—Beginning in 1959–60, includes Alaska and Hawaii.

SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education, "Digest of Educational Statistics."

TABLE 4 ENROLLMENT IN FEDERALLY AIDED VOCATIONAL CLASSES, BY TYPE OF PROGRAM: UNITED STATES AND OUTLYING AREAS, 1919–20 TO 1965–66

School year	Total	Type of program						
		Agriculture	Distributive occupations	Home economics	Trades and industry	Health occupations	Technical education	Office occupations
1919–20	265,058	31,301		48,938	184,819			
1929–30	981,882	188,311		174,967	618,604			
1939–40	2,290,741	584,133	129,433	818,766	758,409			
1949–50	3,364,613	764,975	364,670	1,430,366	804,602			
1951–52	3,165,988	746,402	234,984	1,391,389	793,213			
1953–54	3,164,851	737,502	220,619	1,380,147	826,583			
1955–56	3,413,159	785,599	257,025	1,486,816	883,719			
1957–58	3,629,339	775,892	282,558	1,559,822	983,644	27,423		
1959–60	3,768,149	796,237	303,784	1,588,109	938,490	40,250	101,279	
1961–62	4,072,677	822,664	321,065	1,725,660	1,005,383	48,985	148,920	
1963–64	4,566,390	860,605	334,126	2,022,138	1,069,274	59,006	221,241	
1964–65	5,430,611	887,529	333,342	2,098,520	1,087,807	66,772	225,737	730,904
1965–66	6,070,059	907,354	420,426	1,897,670	1,269,051	83,677	253,838	1,238,043

SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education, "Vocational and Technical Education."

TABLE 5 NUMBER OF CLASSROOM TEACHERS IN ELEMENTARY AND SECONDARY SCHOOLS, AND INSTRUCTIONAL STAFF MEMBERS IN INSTITUTIONS OF HIGHER EDUCATION: UNITED STATES, FALL 1966 AND 1967 [1]

[Includes full-time and part-time teachers and staff]

Level and type of school	Fall 1966	Fall 1967	Percentage increase, 1966 to 1967
All levels	2,497,000.	2,614,000	4.7
Elementary schools	1,176,000	1,217,000	3.5
Public (regular full-time)	1,005,000	1,040,000	3.5
Nonpublic (regular full-time)	157,000	163,000	3.8
Other [2]	14,000	14,000	0
Secondary schools	864,000	902,000	4.4
Public (regular full-time)	783,000	815,000	4.1
Nonpublic (regular fullti-me)	74,000	80,000	8.1
Other [2]	7,000	7,000	0
Elementary and secondary schools	2,040,000	2,119,000	3.9
Public (regular full-time)	1,788,000	1,855,000	3.7
Nonpublic (regular full-time)	231,000	243,000	5.2
Other [2]	21,000	21,000	0
Higher education [3]	457,000	495,000	8.3
Public	252,000	273,000	8.3
Nonpublic	205,000	222,000	8.3

[1] All figures except those for public elementary and secondary schools are estimated.
[2] Includes federally operated schools, subcollegiate departments of institutions of higher education, and residential schools for exceptional children.
[3] Includes faculty for resident instruction in degree-credit courses; excludes faculty engaged in administration, research, extension work, etc.

SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education, surveys and estimates of the National Center for Educational Statistics.

TABLE 6 COMPARATIVE STATISTICS ON ENROLLMENT, TEACHERS, AND SCHOOLHOUSING IN FULL-TIME PUBLIC ELEMENTARY AND SECONDARY SCHOOLS: UNITED STATES, FALL 1962 AND 1967

Item	Fall 1962	Fall 1967	Percentage change, 1962 to 1967
Enrollment			
Total	38,748,907	43,886,805	13.3
Elementary schools	25,263,661	27,381,259	8.4
Secondary schools	13,485,246	16,505,546	22.4
Classroom teachers			
Total	1,507,552	1,854,700	23.0
Elementary schools	886,161	1,040,160	17.4
Secondary schools	621,391	814,540	31.1
Pupil-teacher ratio			
All schools	25.7	23.7	
Elementary schools	28.5	26.3	
Secondary schools	21.7	20.3	
Instruction rooms			
Total available	1,438,384	1,709,000	18.8
Number completed during preceding school year	72,089	71,000	—1.5

SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education, "Fall 1962 Enrollment, Teachers, and Schoolhousing" and "Fall 1967 Statistics of Public Schools."

TABLE 7 NUMBER OF HIGH SCHOOL GRADUATES COMPARED WITH POPULATION 17 YEARS OF AGE: UNITED STATES, 1869-70 TO 1966-67

School year	Population 17 years old [2]	High school graduates [1]			Number graduated per 100 persons 17 years of age
		Total	Boys	Girls	
1869-70	815,000	16,000	7,064	8,936	2.0
1879-80	946,026	23,634	10,605	13,029	2.5
1889-90	1,259,177	43,731	18,549	25,182	3.5
1899-1900	1,489,146	94,883	38,075	56,803	6.4
1909-10	1,786,240	156,429	63,676	92,753	8.8
1919-20	1,855,173	311,266	123,684	187,582	16.8
1929-30	2,295,822	666,904	300,376	366,528	29.0
1939-40	2,403,074	1,221,475	578,718	642,757	50.8
1949-50	2,034,450	1,199,700	570,700	629,000	59.0
1951-52	2,040,800	1,196,500	569,200	627,300	58.6
1953-54	2,128,600	1,276,100	612,500	663,600	60.0
1955-56	2,270,000	1,414,800	679,500	735,300	62.3
1957-58	2,324,000	1,505,900	725,500	780,400	64.8
1959-60	2,862,005	1,864,000	898,000	966,000	65.1
1961-62	2,768,000	1,925,000	941,000	984,000	69.5
1963-64	3,001,000	2,290,000	1,121,000	1,169,000	76.3
1965-66	3,524,000	2,644,000	1,314,000	1,330,000	75.0
1966-67 [3]	3,519,000	2,650,000	1,318,000	1,332,000	75.3

[1] Includes graduates of public and nonpublic schools.
[2] Data from the Bureau of the Census.
[3] Preliminary data.

Note.—Beginning in 1959-60, includes Alaska and Hawaii.

SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education, "Digest of Educational Statistics."

TABLE 8 EARNED DEGREES CONFERRED BY INSTITUTIONS OF HIGHER EDUCATION: UNITED STATES, 1869-70 TO 1966-67

Year	Earned degrees conferred			
	All degrees	Bachelor's and first professional	Master's except first professional	Doctor's
1869-70	9,372	9,371	0	1
1879-80	13,829	12,896	879	54
1889-90	16,703	15,539	1,015	149
1899-1900	29,375	27,410	1,583	382
1909-10	39,755	37,199	2,113	443
1919-20	53,516	48,622	4,279	615
1929-30	139,752	122,484	14,969	2,299
1939-40	216,521	186,500	26,731	3,290
1949-50	496,661	432,058	58,183	6,420
1951-52	401,203	329,986	63,534	7,683
1953-54	356,608	290,825	56,788	8,995
1955-56	376,973	308,812	59,258	8,903
1957-58	436,979	362,554	65,487	8,938
1959-60	476,704	392,440	74,435	9,829
1961-62	514,323	417,846	84,855	11,622
1963-64	614,194	498,654	101,050	14,490
1965-66	709,832	551,040	140,555	18,237
1966-67 [1]	721,600	570,000	132,800	18,800

[1] Estimated.

Note.—Beginning in 1959-60, includes Alaska and Hawaii.

SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education, "Digest of Educational Statistics" and "Earned Degrees Conferred."

TABLE 9 EARNED DEGREES CONFERRED BY INSTITUTIONS OF HIGHER EDUCATION, BY FIELD OF STUDY AND BY LEVEL: UNITED STATES AND OUTLYING AREAS, 1965-66

Area of study	Earned degrees conferred			
	Bachelor's (requiring 4 or 5 years)	First professional (requiring at least 6 years)	Second level (master's)	Doctor's (Ph. D., Ed. D., etc.)
All areas	524,117	31,496	140,772	18,239
Agriculture	5,730	0	1,363	537
Architecture	2,401	198	381	9
Biological Sciences	27,010	38	4,235	2,097
Business and Commerce	63,500	0	12,988	387
Computer Science and Systems Analysis	89	0	238	19
Education	118,399	22	50,478	3,063
Engineering	35,815	0	13,678	2,304
English and Journalism	42,321	2	6,788	714
Fine and Applied Arts	18,677	28	5,019	476
Foreign Languages and Literature	15,519	8	3,631	512
Forestry	1,443	23	303	51
Geography	1,934	0	370	58
Health Professions	15,054	13,253	2,867	251
Home Economics	5,724	0	740	54
Law	245	13,442	780	29
Library Science	619	23	3,916	19
Mathematical Subjects	20,090	3	4,772	782
Military Science	1,979	0	0	0
Philosophy	5,024	12	613	203
Physical Sciences	17,185	1	4,992	3,045
Psychology	17,022	0	2,530	1,046
Religion	4,036	4,443	1,946	333
Social Sciences	93,669	0	16,460	2,158
Trade and Industrial Training	2,357	0	44	11
Other Fields	8,275	0	1,640	81

SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education, "Earned Degrees Conferred, 1965-66."

TABLE 10 ESTIMATED RETENTION RATES, 5TH GRADE THROUGH COLLEGE ENTRANCE, IN PUBLIC AND NONPUBLIC SCHOOLS: UNITED STATES, 1924-32 TO 1959-67

School year in which pupils entered 5th grade	For every 1,000 pupils entering 5th grade in a specified year, this number—				
	Entered 6th grade 1 year later	Entered 7th grade 2 years later	Entered 8th grade 3 years later	Entered 9th grade 4 years later	Entered 10th grade 5 years later
1924-25	911	798	741	612	470
1926-27	919	824	754	677	552
1928-29	939	847	805	736	624
1930-31	943	872	824	770	652
1932-33	935	889	831	786	664
1934-35	953	892	842	803	711
1936-37	954	895	849	839	704
1938-39	955	908	853	796	655
1940-41	968	910	836	781	697
1942-43	954	909	847	807	713
1944-45	952	929	858	848	748
1946-47	954	945	919	872	775
1948-49	984	956	929	863	795
1950-51	981	968	921	886	809
1952-53	974	965	936	904	835
1954-55	980	979	948	915	855
1956-57	985	984	948	930	871
1958-59	985	978	960	940	906
1959-60	990	983	976	966	928

	Entered 11th grade 6 years later	Entered 12th grade 7 years later	Graduated from high school 7 years later (i.e., in the year shown)	Entered college 8 years later
1924-25	384	344	302 (in 1932)	118
1926-27	453	400	333 (in 1934)	129
1928-29	498	432	378 (in 1936)	137
1930-31	529	463	417 (in 1938)	148
1932-33	570	510	455 (in 1940)	160
1934-35	610	512	467 (in 1942)	129
1936-37	554	425	393 (in 1944)	121
1938-39	532	444	419 (in 1946)	(1)
1940-41	566	507	481 (in 1948)	(1)
1942-43	604	539	505 (in 1950)	205
1944-45	650	549	522 (in 1952)	234
1946-47	641	583	553 (in 1954)	283
1948-49	706	619	581 (in 1956)	301
1950-51	709	632	582 (in 1958)	308
1952-53	746	667	621 (in 1960)	328
1954-55	759	684	642 (in 1962)	343
1956-57	790	728	676 (in 1964)	362
1958-59	838	782	717 (in 1966)	394
1959-60	853	785	721 (in 1967)	400

[1] Data not available.

SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education, "Digest of Educational Statistics."

TABLE 11 LEVEL OF SCHOOL COMPLETED BY PERSONS 25 YEARS OLD AND OVER, AND 25 TO 29 YEARS OLD: UNITED STATES, 1940 TO 1966

Date and age	Percent by level of school completed			Median school years completed
	Fewer than 5 years of elementary school	4 years of high school or more	4 or more years of college	
25 years and over				
March 1966	6.5	49.9	9.8	12.0
March 1964	7.1	48.0	9.1	11.7
March 1962	7.8	46.3	8.9	11.4
March 1959	8.0	42.9	7.9	11.0
March 1957	9.0	40.8	7.5	10.6
October 1952	9.1	38.4	6.9	10.1
April 1950	10.8	33.4	6.0	9.3
April 1947	10.4	32.6	5.4	9.0
April 1940	13.5	24.1	4.6	8.4
25 to 29 years				
March 1966	1.6	71.0	14.0	12.5
March 1964	2.1	69.2	12.8	12.4
March 1962	2.4	65.9	13.1	12.4
March 1959	3.0	63.3	11.0	12.3
October 1952	3.8	56.7	10.0	12.2
April 1950	4.6	51.7	7.7	12.1
April 1940	5.9	37.8	5.8	10.4

Note.—Beginning in 1962, includes Alaska and Hawaii. Data for 1962 and 1964 are not strictly comparable with earlier years.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "Current Population Reports," Series P-20, Nos. 99 and 158.

TABLE 12 PERCENT OF ILLITERACY[1] IN THE POPULATION: UNITED STATES, 1900 TO 1960

Year	Percent illiterate[2]	Year	Percent illiterate[2]
1900	11.3	1930	4.8
1910	8.3	1950[3]	3.3
1920	6.5	1960[3]	2.4

[1] Illiteracy is defined as the inability to read and write a simple message either in English or in any other language.
[2] Percentages refer to the population 15 years old and over from 1900 to 1930 and to the population 14 years old and over in 1950 and 1960.
[3] Estimated.

Note.—Data are for 50 States and the District of Columbia.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "Current Population Reports," Series P-23, No. 8.

TABLE 13 REVENUE RECEIPTS FOR PUBLIC ELEMENTARY AND SECONDARY SCHOOLS, BY SOURCE: UNITED STATES, 1919-20 TO 1965-66

School year	Total	Federal Government	State governments	Local sources [1]
	AMOUNTS			
1919-20	$970,120,000	$2,475,000	$160,085,000	$807,561,000
1929-30	2,088,557,000	7,334,000	353,670,000	1,727,553,000
1939-40	2,260,527,000	39,810,000	684,354,000	1,536,363,000
1949-50	5,437,044,000	155,848,000	2,165,689,000	3,115,507,000
1951-52	6,423,816,000	227,711,000	2,478,596,000	3,717,507,000
1953-54	7,866,852,000	355,237,000	2,944,103,000	4,567,512,000
1955-56	9,686,677,000	441,442,000	3,828,886,000	5,416,350,000
1957-58	12,181,513,000	486,484,000	4,800,368,000	6,894,661,000
1959-60	14,746,618,000	651,639,000	5,768,047,000	8,326,932,000
1961-62	17,527,707,000	760,975,000	6,789,190,000	9,977,542,000
1963-64	20,544,182,000	896,956,000	8,078,014,000	11,569,213,000
1965-66 [2]	25,480,500,000	2,015,600,000	9,886,600,000	13,578,300,000
	PERCENTAGE DISTRIBUTION			
1919-20	100.0	0.3	16.5	83.2
1929-30	100.0	0.4	16.9	82.7
1939-40	100.0	1.8	30.3	68.0
1949-50	100.0	2.9	39.8	57.3
1951-52	100.0	3.5	38.6	57.9
1953-54	100.0	4.5	37.4	58.1
1955-56	100.0	4.6	39.5	55.9
1957-58	100.0	4.0	39.4	56.6
1959-60	100.0	4.4	39.1	56.5
1961-62	100.0	4.3	38.7	56.9
1963-64	100.0	4.4	39.3	56.3
1965-66 [2]	100.0	7.9	38.8	53.3

[1] Includes a relatively minor amount from other sources (gifts and tuition and transportation fees from patrons), which accounted for 0.4 percent of total revenue receipts in 1965-66.
[2] Preliminary data.

Note.—Beginning in 1959-60, includes Alaska and Hawaii. Because of rounding, detail may not add to totals.

SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education, surveys of "Statistics of State School Systems."

TABLE 14 FEDERAL FUNDS FOR EDUCATION, TRAINING, AND RELATED PROGRAMS: FISCAL YEARS 1967 AND 1968

[New obligational authority]

Level and type of support	1967	1968	Percentage change, 1967 to 1968
Federal funds by educational level			
Total, other than loans	$6,433,000,000	$6,910,000,000	+7.4
Elementary-secondary education [1]	2,693,000,000	2,920,000,000	+8.4
Higher education [2]	2,246,000,000	2,359,000,000	+5.0
Adult, vocational-technical, and continuing education	1,494,000,000	1,631,000,000	+9.2
Loans, total	741,000,000	626,000,000	−15.5
Elementary-secondary education	2,000,000	2,000,000	0
Higher education	739,000,000	618,000,000	−16.4
Vocational-technical and adult education		6,000,000	
Other Federal funds for education and related activities			
Applied research and development [3]	2,167,000,000	2,276,000,000	+5.0
Related school services [4]	451,000,000	481,000,000	+6.7
Training of Federal personnel	1,530,000,000	1,672,000,000	+9.3
Library services [5]	185,000,000	187,000,000	+1.1
International education	338,000,000	341,000,000	+.9
Other	177,000,000	194,000,000	+9.6

[1] Excludes an estimated $2,000,000 each year for loans to private schools.
[2] Includes funds for college libraries; excludes amounts for research.
[3] Includes $540,000,000 (1967) and $65,700,000 (1968) for off-campus college-operated research centers.
[4] Includes amounts for school milk and cash and commodity distributions for schools.
[5] Includes amounts for public libraries, National Agriculture Library, National Library of Medicine, and Library of Congress.

SOURCE: Data based on "Special Analyses, Budget of the United States, Fiscal Year 1969," Chapter H, Federal Education, Training and Related Programs.

TABLE 15 TOTAL AND PER-PUPIL EXPENDITURES FOR PUBLIC ELEMENTARY AND SECONDARY EDUCATION: UNITED STATES, 1919-20 TO 1967-68

School year	Total	Total expenditure per pupil in average daily attendance	School year	Total	Total expenditure per pupil in average daily attendance
1919-20	$1,036,151,000	$64	1957-58	$13,569,163,000	$449
1929-30	2,316,790,000	108	1959-60	15,613,255,000	472
1939-40	2,344,049,000	106	1961-62	18,373,339,000	518
1949-50	5,837,643,000	259	1963-64	21,324,993,000	559
1951-52	7,344,237,000	313	1965-66	26,195,500,000	652
1953-54	9,092,449,000	351	1967-68 [1]	31,511,051,000	750
1955-56	10,955,047,000	388			

[1] Estimated.

Note.—Beginning in 1959-60, includes Alaska and Hawaii.

SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education, "Statistics of State School Systems," and "Fall 1967 Statistics of Public Schools."

TABLE 16 GROSS NATIONAL PRODUCT RELATED TO TOTAL EXPENDITURES[1] FOR EDUCATION: UNITED STATES, 1929-30 TO 1967-68

Calendar year	Gross national product	School year	Expenditures for education	
			Total	As a percent of gross national product
1929	$103,095,000,000	1929-30	$3,233,601,000	3.14
1931	75,820,000,000	1931-32	2,966,464,000	3.91
1933	55,601,000,000	1933-34	2,294,896,000	4.13
1935	72,247,000,000	1935-36	2,649,914,000	3.67
1937	90,446,000,000	1937-38	3,014,074,000	3.33
1939	90,494,000,000	1939-40	3,199,593,000	3.54
1941	124,540,000,000	1941-42	3,203,548,000	2.57
1943	191,592,000,000	1943-44	3,522,007,000	1.84
1945	212,010,000,000	1945-46	4,167,597,000	1.97
1947	231,323,000,000	1947-48	6,574,379,000	2.84
1949	256,484,000,000	1949-50	8,795,635,000	3.43
1951	328,404,000,000	1951-52	11,312,446,000	3.44
1953	364,593,000,000	1953-54	13,949,876,000	3.83
1955	397,960,000,000	1955-56	16,811,651,000	4.22
1957	441,134,000,000	1957-58	21,119,565,000	4.79
1959	483,650,000,000	1959-60	24,722,464,000	5.11
1961	520,109,000,000	1961-62	29,366,305,000	5.65
1963	589,238,000,000	1963-64	36,010,210,000	6.11
1965	683,900,000,000	1965-66	[2] 44,800,000,000	6.55
1967	785,100,000,000	1967-68	[2] 52,200,000,000	6.65

[1] Includes expenditures of public and nonpublic schools at all levels of education (elementary, secondary, and higher education).
[2] Estimated.

Note.—Beginning with 1959-60 school year, includes Alaska and Hawaii.

SOURCES: U.S. Department of Health, Education, and Welfare, Office of Education, "Digest of Educational Statistics;" and U.S. Department of Commerce, Office of Business Economics, "Survey of Current Business," August 1965 and August 1967.

TABLE 17 EXPENDITURE OF FEDERAL, STATE, AND LOCAL FUNDS FOR VOCATIONAL EDUCATION: UNITED STATES AND OUTLYING AREAS, 1919-20 TO 1965-66

School year	Total	Federal	State	Local
1919-20	$8,535,000	$2,477,000	$2,670,000	$3,388,000
1929-30	29,909,000	7,404,000	8,233,000	14,272,000
1939-40	55,081,000	20,004,000	11,737,000	23,340,000
1949-50	128,717,000	26,623,000	40,534,000	61,561,000
1951-52	146,466,000	25,863,000	47,818,000	72,784,000
1953-54	151,289,000	25,419,000	54,550,000	71,320,000
1955-56	175,886,000	33,180,000	61,821,000	80,884,000
1957-58	209,748,000	38,733,000	72,305,000	98,710,000
1959-60	238,812,000	45,313,000	82,466,000	111,033,000
1961-62	283,948,000	51,438,000	104,264,000	128,246,000
1963-64	332,785,000	55,027,000	124,975,000	152,784,000
1965-66	797,809,000	234,585,000	215,834,000	347,389,000

Note.—Because of rounding, detail may not add to totals.

SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education, Vocational and Technical Education; "Digest of Educational Statistics, 1967."

TABLE 18 NUMBER OF PARTICIPANTS IN INTERNATIONAL EDUCATION PROGRAMS ADMINISTERED BY THE U.S. OFFICE OF EDUCATION: 1957-58, 1962-63, AND 1967-68

Program	Number of participants		
	1957-58	1962-63	1967-68
Teacher development	359	478	[1] 560
Teacher exchange	290	280	242
U.S. teachers to foreign countries	122	154	81
Foreign teachers to United States	27	75	68
Seminars for teachers and administrators	76	228	162
Technical assistance in education	637	822	[1] 550

[1] Estimated.

SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education, Bureau of Elementary and Secondary Education.

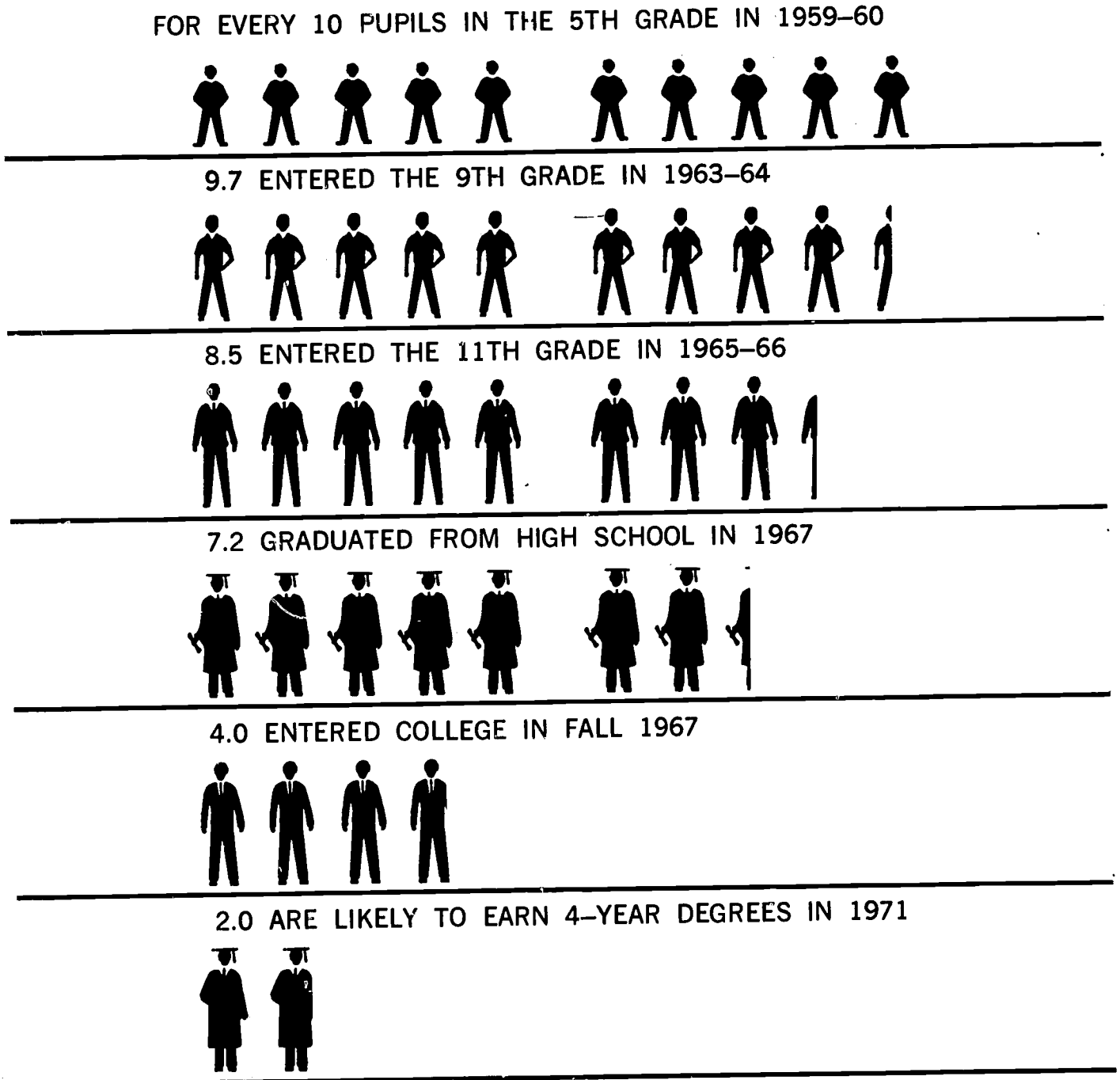
TABLE 19 STUDENTS FROM ABROAD ENROLLED IN INSTITUTIONS OF HIGHER EDUCATION IN THE UNITED STATES: 1961-62 AND 1966-67

Major field of interest and year	World total	Far East	Near East	Europe	Latin [1] America	North [2] America	Africa	Oceania	U.S.S.R.	Stateless
Total										
1961-62	58,086	21,568	8,277	6,833	9,915	6,639	3,930	796	37	91
1966-67	100,145	33,570	12,830	14,152	18,182	12,230	7,170	1,635	56	320
Agriculture										
1961-62	1,893	535	346	126	523	113	218	32		3
1966-67	3,290	966	396	293	697	308	556	71		
Business administration										
1961-62	5,085	1,961	499	570	985	742	246	77		5
1966-67	9,872	3,188	988	1,206	2,144	1,467	691	165	4	26
Education										
1961-62	3,042	1,012	354	217	409	670	292	88		
1966-67	5,533	1,473	504	524	852	1,464	511	193	1	11
Engineering										
1961-62	13,031	4,954	3,031	1,240	2,339	874	497	53	15	28
1966-67	21,598	8,447	4,593	2,392	3,704	1,178	1,082	124	15	63
Humanities										
1961-62	11,163	3,506	1,086	1,896	2,115	1,741	602	197	3	17
1966-67	20,013	5,163	1,607	4,449	4,332	3,133	831	371	22	105
Medical sciences										
1961-62	4,109	1,461	495	424	816	506	313	91	1	2
1966-67	5,429	1,749	560	623	1,116	799	427	147		8
Physical and natural sciences										
1961-62	9,414	4,347	1,167	1,049	1,128	888	686	123	5	21
1966-67	17,050	7,791	1,960	1,966	2,267	1,526	1,191	289	6	54
Social sciences										
1961-62	8,443	3,114	1,039	1,085	1,137	952	979	113	11	13
1966-67	14,835	4,091	1,803	2,243	2,582	2,073	1,746	250	6	41
All other fields										
1961-62	661	202	84	47	239	52	31	6		1
1966-67	1,174	365	228	140	206	144	77	13		
No information										
1961-62	1,245	476	176	179	224	101	66	16	2	5
1966-67	1,346	337	193	316	282	138	58	12	2	8

[1] South America, Mexico, Central America and Caribbean areas.
[2] Bermuda and Canada only.

SOURCE: Institute of International Education, "Open Doors," 1962 and 1967.

ESTIMATED SCHOOL RETENTION RATES, FIFTH GRADE THROUGH COLLEGE GRADUATION: UNITED STATES, 1969–1971



SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education, "Digest of Educational Statistics 1967."

FIGURE 2

LEVEL OF SCHOOL COMPLETED BY PERSONS 25 YEARS OLD AND OVER: 1947 TO 1966

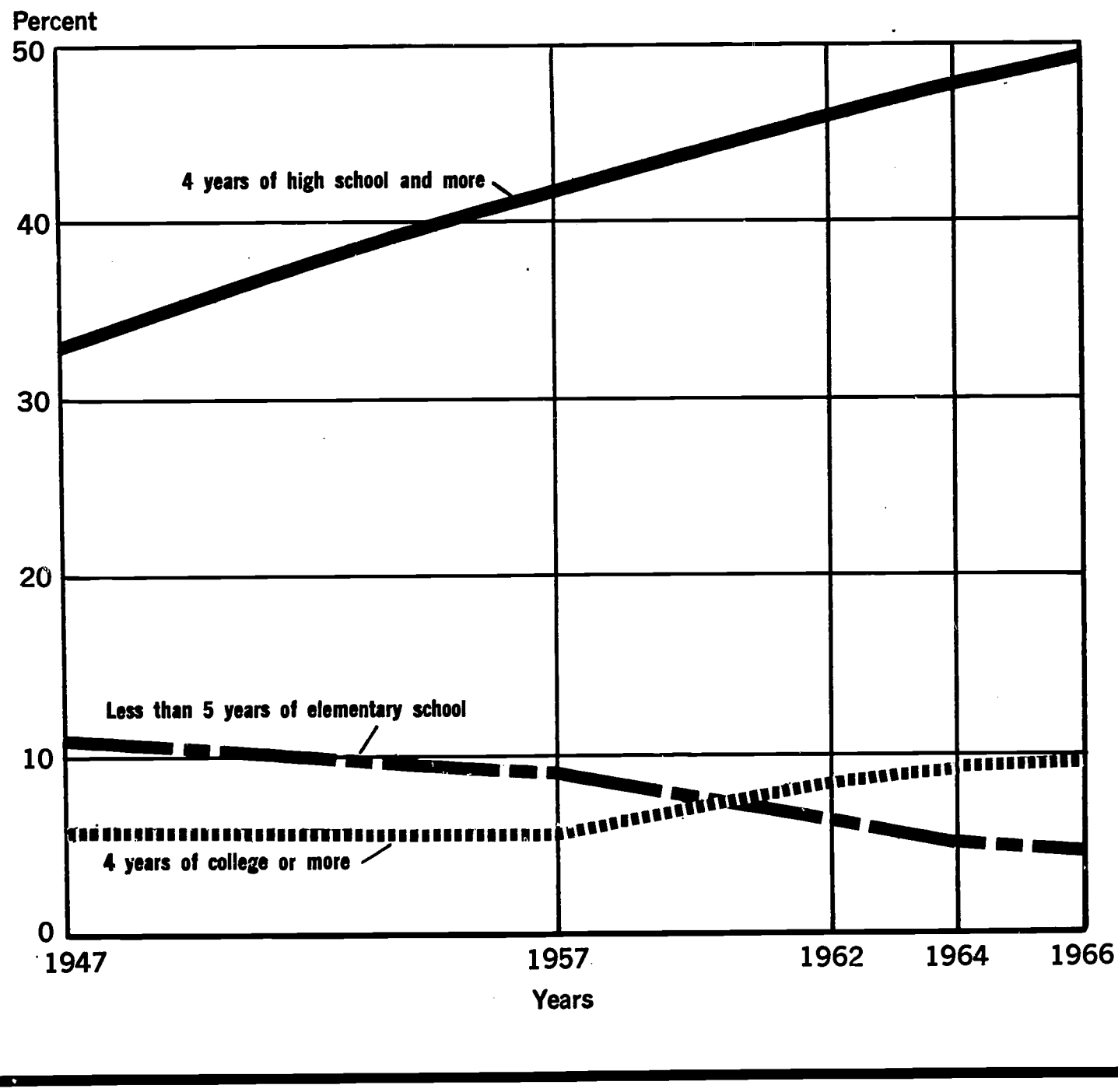
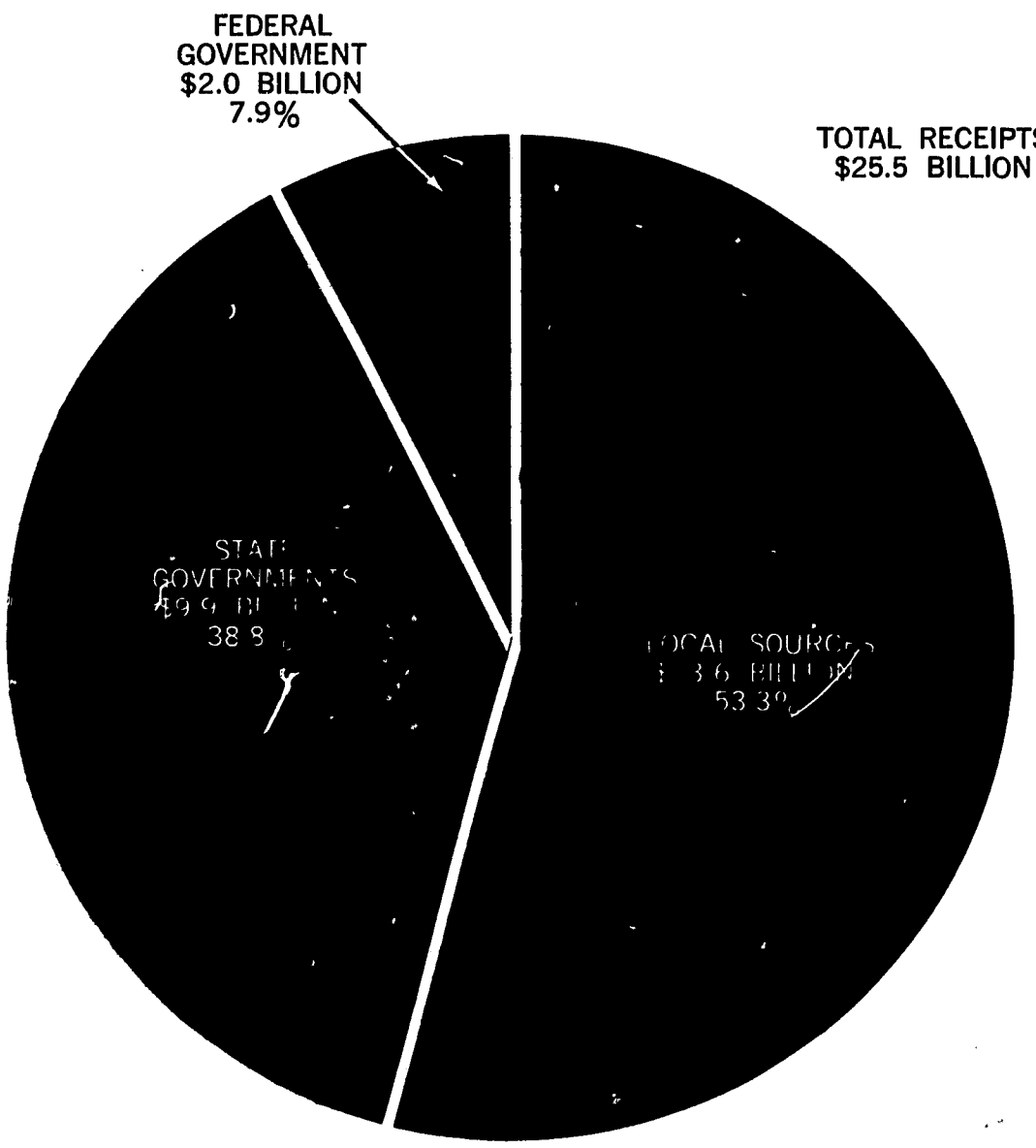


FIGURE 3

REVENUE RECEIPTS FOR PUBLIC ELEMENTARY AND SECONDARY SCHOOLS, BY SOURCE: UNITED STATES, 1965–66

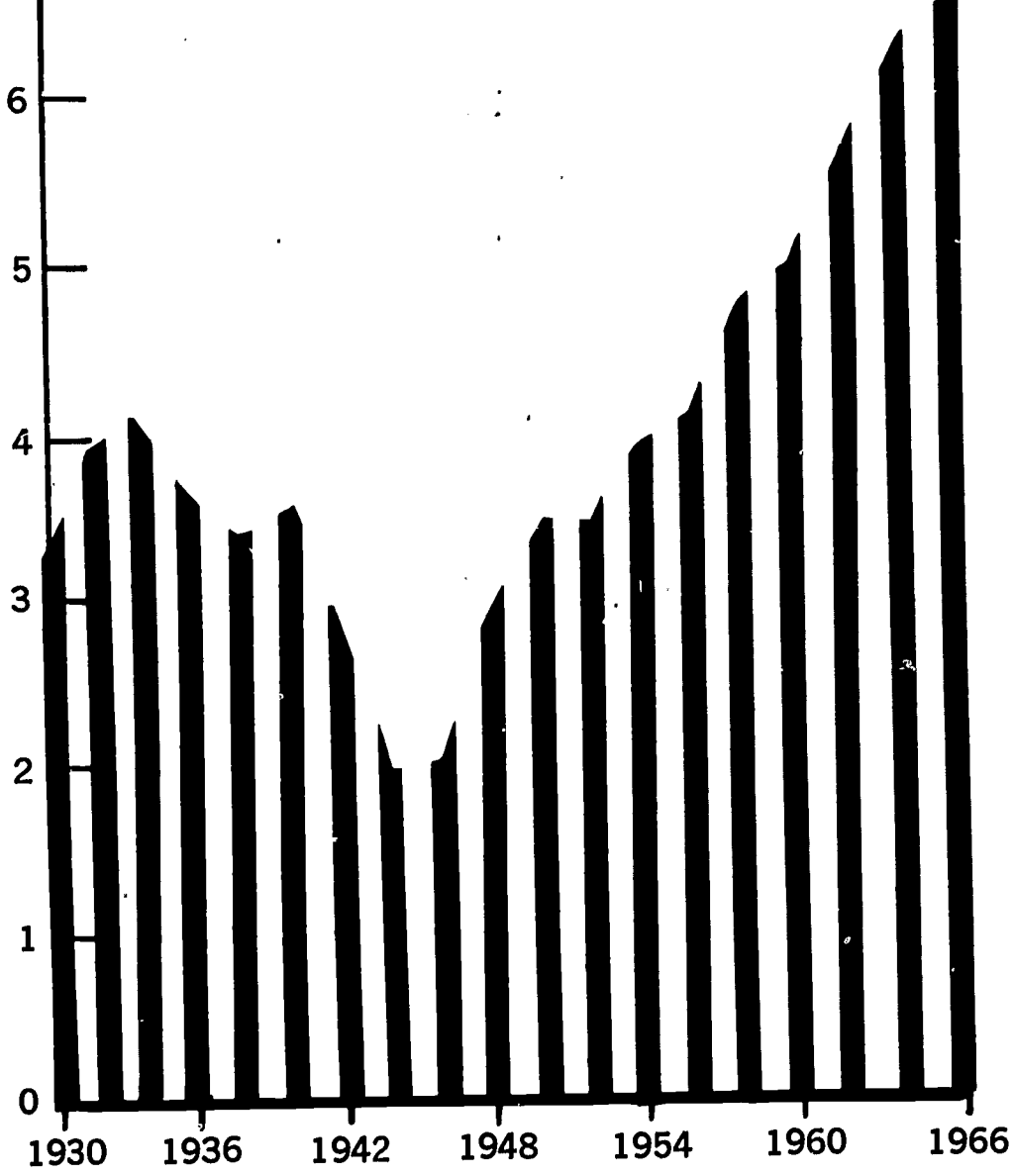


NOTE—Because of rounding, detail may not add to totals.

SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education, *Statistics of State School Systems, 1965–66.*

FIGURE 4

TOTAL EXPENDITURES FOR EDUCATION AS A PERCENTAGE OF GROSS NATIONAL PRODUCT: UNITED STATES, 1929–30 TO 1965–66



SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education, "Digest of Educational Statistics" table 23.

FIGURE 5

PART II

Vocational and Technical Education Programs

Vocational education in the United States is an integral part of the total endeavor to develop individuals competent to discharge their responsibilities as citizens. Such instruction is intended for persons of all ages throughout the Nation. The offerings of vocational education are required by law to be realistic in terms of actual and expected opportunities for employment and suited to the needs, interests, and abilities of youth and adults to benefit from the training.

Basic general education is essential to vocational education. In preparing to cope with the obligations of adulthood—which include earning a living—students must gain command of the basic learning skills and of the fundamental knowledge and attitudes usually acquired through general education. As the students develop and mature, vocational and general education are combined to produce a series of meaningful learning experiences.

THE MANPOWER SITUATION

Manpower development policy in the United States advocates the preparation of a qualified labor force necessary for the country to grow economically and for individuals to gain the capacities to benefit from, participate in, and adjust to change. This policy recognizes both the economic significance of education and the importance of each person as a contributing member of society.

Over the past century, the labor force has moved from one primarily concerned with producing food and materials basic to existence, through a stage oriented toward mass production of manufactured goods, to the present phase which emphasizes both production and services.

This progression has led to significant changes in the industrial and occupational structure of the economy. In 1956, for the first time, nonmanual workers (professional, managerial, clerical, and sales workers) outnumbered manual workers (craftsmen, semiskilled workers, and laborers). It is expected that the rapid increase of the former will continue and that there will be a slower rise among the latter. Also there will be a faster-than-average growth of service workers, and a continuing decline in the number of farmers and farmworkers. Opportunities for employment are increasing in off-farm agricultural occupations. Women continue to play important roles; their employment in many areas is increasing.

It is estimated that by 1975, 88.7 million persons will be employed, an increase of 23 percent over the 72.2 million workers in jobs during 1965.

The mounting pressures of technological, population, and other changes will affect educational programs, especially as they relate to the preparation of people for the job market. Coupled with the need for providing education and training for a growing population is the intensified interest in the special groups within that population; that is, the physically handicapped, the mentally retarded, the older workers, and the culturally deprived. The development of all these people must be related to the necessary modification of the manpower and occupational requirements of a dynamic economy.

FEDERAL-STATE RELATIONSHIPS

The Federal Government stimulates and promotes education in the United States and often provides funds to help support some of its com-

ponent programs. It is not responsible for the organization and administration of education. Each of the States operates its own educational system and formulates its own educational policies. Hence, practices differ across the Nation.

In the field of vocational education, the Federal Government has encouraged the States to establish, improve, and expand programs and facilities. Based upon local needs and with local participation, these activities are conducted under State control. They are planned and administered in each State by a board of vocational education in line with a State plan developed by the board. The States provide leadership, supervision, teacher education, and vocational guidance services. They also contribute their financial share and disburse the Federal funds in conformity with the State plan.

The Federal cooperation involves partial financial support, aid in promulgating desirable policies and standards, sponsorship of conferences, and other types of services to assist in developing effective programs. Through mutually satisfactory Federal-State liaison, the benefits of vocational and technical education are being extended on a continuing basis to serve increasing numbers of youth and adults throughout the Nation.

HISTORICAL BACKGROUND

Some form of vocational education has been taught in the United States since the first settlers came to this country. National leaders worked diligently to create programs which would provide an adequate supply of well-trained manpower. Interested groups recognized that the national need for vocational training made it necessary for Congress to provide Federal funds to encourage and assist the States in establishing such programs. After intensive research and investigation, the Smith-Hughes Act was passed by the Congress in 1917 to implement programs of vocational and technical education throughout the Nation. Its passage brought into being federally supported programs of vocational education conducted by the States as an integral part of public education. The major purposes of the 1917 Act were to prepare youth and adults for employment, to assist employed workers to gain advancement and to improve home and family life. It was recognized that there was a need for the development of the highest degree of efficiency in agriculture, manufacturing, processing, and marketing so that the Nation could compete successfully in the world markets. Provisions were made for the establishment of programs of State supervision and teacher education.

Under the provisions of the Smith-Hughes Act and supplementary acts, comprehensive programs of vocational and technical education were extended. Federal aid made possible the development of vocational education to serve people who seek employment or who are already employed in trades and industries, agriculture, distribution and marketing, home economics, office, health, and technical occupations. During two national crises, vocational education provided training programs to help increase production, and afterward aided veterans preparing for employment. Through public vocational education programs, counseling services were provided to both youth and adults preparing to enter the work force.

Since the first national vocational education act was passed in 1917, Congress has passed a

number of laws designed to improve existing programs and develop new ones. Among the more recent acts are the Manpower Development and Training Act, passed in 1962, which made possible vocational instruction for the unemployed and the underemployed; and the Vocational Education Act of 1963.

The Vocational Educational Act of 1963 set a new pattern for Federal support of vocational and technical education. It continued the previous authorization of training in specified occupational categories and added the office occupations. It also permitted States, at their option, to transfer Federal funds from one category to another. In addition, the 1963 Act offered States additional funds for the training of specified population groups, regardless of the ocupational objectives of the training—high school youth, postsecondary school youth and adults enrolled in full-time instruction, youth and adults enrolled in other courses, and people with special needs. One of the significant developments under the Act that is helping to make this possible is the construction of additional area vocational schools. The Act also provides for the development of adequate research programs designed to develop new and better ways of providing vocational education.

The importance of vocational and technical education in the United States is shown by the significant growth in enrollment since the passage of the first national vocational education act in 1917.

Year	*Enrollment*
1918	164,180
1928	858,456
1938	1,810,082
1948	2,835,392
1958	3,620,330
1968	[1] 7,800,000

[1] Estimated.

GUIDELINES FOR DEVELOPMENT AND OPERATION OF VOCATIONAL AND TECHNICAL EDUCATION

Vocational education means systematic instruction designed to develop the skills and abilities directly related to occupations other than those classified as professional.

Programs of vocational education are directly related to employment opportunities as determined by school officials and employers.

The major purpose of vocational education is to equip persons for useful employment; it provides training to develop the skills and abilities needed by a worker in his occupational field.

Vocational education is designed to meet the needs of persons who have entered upon or are preparing to enter an occupational field and who can be expected to profit from the instruction offered.

Vocational guidance, including effective followup of students, is an integral and continuing part of vocational education. Students are helped to make occupational choices based upon their interests, abilities, aptitudes, limitations, and employment opportunities. The students also receive aid in making personal and occupational adjustments after they are employed.

Preservice and inservice training opportunities are conducted for the instructors, coordinators, supervisors, and directors of vocational education. Teachers and coordinators are expected to be competent in the occupational field in which they are instructing students and to have appropriate professional qualifications for teaching.

Public vocational education in the United States is under public supervision or control. It is organized and operated under the direction

of a State or local board responsible for expenditure of public school funds for vocational education in the State or community. State or local agency personnel responsible for vocational education employ teachers, determine whether pupils qualify for admission to classes, and decide the content and organization of courses and curriculum.

Each State designates a State agency to be responsible for administering the programs on the State level. The State submits a State plan for the conducting of vocational education programs for approval by the U.S. Commissioner of Education. The States report annually to the Office of Education.

The Office of Education is responsible for the administration of the Federal-State cooperative vocational education programs. The Office provides consultative service to the various States and helps appraise the manner in which the State agency carries out the provisions of the State plan.

Courses and programs for a specific occupation are designed and maintained with the advice and cooperation of representatives from each occupational field.

Training in a particular occupation is carried to the point of developing marketable skills and other job assets to enable students to succeed in initial employment and prepare for advancement.

The principle that one "learns to do by doing" is applied in all phases of vocational education; this helps materially to bridge the gap between the school and the work situations.

Experimentation and research in vocational and technical education are encouraged and supported.

AGENCIES PROVIDING VOCATIONAL EDUCATION

In the United States many agencies offer various types of vocational training. The public schools provide instruction for both youth and adults who have entered or are preparing to enter employment in an occupation. It is anticipated that more than 7 million youth and adults will be served through vocational education programs in the public schools during 1968.

Apprenticeship programs are still widely utilized by certain occupations. These programs are promoted by the Bureau of Apprenticeship of the U.S. Department of Labor. The construction trades usually enroll more than half of the apprentices. The metal and printing trades, and the automotive and other repair trades account for most of the other students. Apprenticeship involves an agreement under which the employer agrees to provide on-the-job training for a stated period of time. Most apprenticeship programs are for 2 to 4 years, but some continue as long as 8 years. Vocational educators maintain close working relationships with organized labor in determining the number of persons to be admitted for training in the various apprenticeships. Most programs include a minimum of 144 clock hours of related classroom instruction which is usually provided in vocational classes in the public schools.

Training in industry serves to meet immediate needs, such as those arising when a new worker is employed or an older worker is transferred. Most industrial training is given informally on the job and is related to immediate production or service requirements.

Labor unions have taken active interest in the education and training of their members. Some

unions operate trade schools independently or in cooperation with employers.

Many men and women are prepared for employment in an occupation during their service in the Armed Forces. This training usually consists of organized classes and on-the-job experience.

Correspondence schools offer specific types of vocational training in fields such as radio, television, and electronics. Their students rely on printed instructions, workbooks, illustrations, references, and models as they perform assignments—for example, assembling a radio.

Many private vocational schools have been established throughout the Nation. Some conduct only one course, such as welding, while others offer a wide variety of training.

Close relationships are maintained between public vocational education programs and those of other agencies and industry. Advisory committees of employers and other persons competent to assist instructors and vocational education administrators aid in planning and conducting vocational education programs at the local, State, and National levels. These groups help in determining needs for vocational and technical education and in evaluating ongoing programs.

PUBLIC SECONDARY SCHOOL PROGRAMS

The public secondary school aims to educate youth so that each student may achieve the best his individual capability permits. In addition to providing quality instruction, today's high schools must reach and teach increased numbers of youth and prepare them for more complicated and changing careers.

Since 1900 the opportunity for all youth to receive a secondary school education has been greatly extended. In 1890, only 7 percent of the 14- to 17-year-old youth went to school and about 3.5 percent graduated. Today the Nation's high schools enroll 94 percent of this age group; and more than 75 percent graduate. Among the reasons which may explain the growth of the American secondary school are parents' aspirations for their children, the Nation's commitment to the development of the individual student, compulsory school laws, and the economic necessity that youth acquire basic skills to earn a living. In 1966 there were 26,700 public high schools in the United States. The projected enrollment in these schools for the school year 1967–68 is 12,310,000, divided equally between boys and girls.

The most effective organization meeting the educational needs of youth in the United States is the comprehensive multipurpose secondary school. It is designed to foster the development of social maturity and civic responsibility. It takes into account the varied individual interests and capabilities of all educable youth in a specific community, yet allows all to attend the same school. Graduation from high school occurs when the student has completed the 12th grade. The normal age of graduation from high school is 17 or 18.

The comprehensive high school offers several curriculums. These are most frequently described as the general, the college preparatory, or the vocational. Each curriculum has its own series of required courses and the student is permitted to elect one or more subjects not included in his chosen curriculum. For the most part, boys and girls attend classes together except in the health and physical education courses.

High school students are required to study

English (language arts), social studies, mathematics, science, health, and physical education. They choose among elective courses which include industrial arts, foreign languages, music, art, and vocational education. Classes in the required subjects meet daily usually for 40 to 50 minutes.

ORGANIZATION OF VOCATIONAL AND TECHNICAL EDUCATION

Many vocational and technical programs are conducted in public high schools. The number of such courses is usually limited by the size of the high school. Small high schools offer little, if any, vocational instruction. A range of vocational programs is offered in large comprehensive high schools, separate vocational schools, junior colleges, community colleges, and area vocational schools.

Students who enroll in vocational education courses in the public secondary schools receive training designed to prepare them for employment in an occupation and to solve problems they will encounter on the job and in life. Significant numbers enter employment after the completion of the high school program. Many graduates find their vocational education instruction and guidance useful for entry into a college or university to prepare for a profession.

Area Vocational Schools

The vocational training needs of a larger number of people are being met through systematic development of area vocational schools designed to serve groups of school districts. Due chiefly to the impetus of the Vocational Education Act of 1963, area schools are being provided at the rate of about 250 per year. At the end of 1967 there were 1,100 area vocational schools in the United States. About 1,000 more will be constructed within the next decade.

The area concept is based upon the principle that all qualified persons regardless of where they reside should have an equal opportunity to participate in vocational education programs of their choice. It encourages free or low cost education for all persons in the area served by the school and opportunities for students to profit from training programs regardless of their economic status or location. Within each State, provision is being made for vocational schools and programs that are reasonably accessible to residents in all parts of the State.

Area schools make possible a wide range of program offerings. These schools serve as broad vocational service centers for programs and activities related to the fields of distribution, trades and industry, health, technical occupations, office occupations, agriculture, home economics, and youth and adults with special needs. Area programs use a diversity of administrative control, financial structure, enrollments, expenditures, course offerings, and services. An area vocational school may be a high school designated as such, a technical or vocational school, a department of a junior college, a community college, or a university that offers training in at least five different occupational fields.

Area vocational schools frequently provide training at the high school or postsecondary and adult levels; the latter is most prevalent.

The area vocational school offers many advantages including a broad tax base distributed over large segments of the population. Training opportunities are available to more persons than is possible in smaller schools serving individual communities. A wider range of curriculum

TABLE 20 NUMBER OF SCHOOLS OFFERING VOCATIONAL EDUCATION BY TYPE OF INSTITUTION

Type	1959	1966	Percent change
Regular or comprehensive secondary school	14,408	15,592	+8.2
Vocational-technical secondary	769	431	−44.0
Community or junior college	174	385	+121.6
Technical-vocational postsecondary	22	290	+1,218.1
Combination secondary-postsecondary	No Data	186	
Under contract	No Data	14	
Totals	15,373	16,898	+9.9
Number serving as area vocational schools			
Secondary	315	572	+81.6
Postsecondary	64	414	+546.8

SOURCE: Tabulated from State reports on file in the U.S. Office of Education.

TABLE 21 VOCATIONAL EDUCATION ENROLLMENT SUMMARY, 1965-66

	Total	Secondary		Postsecondary		Adult		Special needs	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Agriculture	907,354	510,279	56.2	5,987	0.7	390,388	43.0	700	0.1
Distributive occupations	420,426	101,728	24.2	15,833	3.8	301,116	71.6	1,749	0.4
Health occupations	83,677	9,793	11.7	36,496	43.6	37,065	44.3	323	0.4
Home economics	1,897,670	1,280,254	67.5	2,652	0.1	602,363	31.7	12,401	0.6
Office occupations	1,238,043	798,368	64.5	165,439	13.4	271,149	21.9	3,087	0.2
Technical education	253,838	28,865	11.1	100,151	39.5	124,730	49.1	92	0.04
Trades and industry	1,269,051	318,961	25.1	115,539	9.1	803,901	63.3	30,650	2.4
Total	6,070,059	3,048,248	50.2	442,097	7.3	2,530,712	41.7	49,002	0.8

SOURCE: U.S. Office of Education, Division of Vocational and Technical Education.

offerings is provided along with more occupational choices and a flexibility in operation that allows program adjustments to meet emergency training needs.

Buildings and Facilities

The steady increase in population and the rapid growth in the labor force in the United States make it essential to continue to expand programs of vocational and technical education to provide the trained manpower that will be needed in the years ahead. The continued growth of vocational and technical education requires the development of adequate modern facilities for these programs.

The availability of funds for construction of area vocational education schools under the provisions of the Vocational Education Act of 1963 has stimulated the States to provide more adequate facilities and to modernize equipment. In 1967 more than 350 projects were funded for construction, expansion, or remodeling of school plants. Facilities are being improved or made available for secondary schools, postsecondary schools, junior colleges, and community colleges. It is expected that enrollment in vocational and technical education will almost triple by 1975 and that a total of 1,900 area vocational schools will be needed to serve the expanding programs.

Many new trends are taking place in the revision of old facilities and the planning of new buildings. These include placing greater emphasis on esthetic design, the development of flexible facilities that are readily adaptable to changing needs, provision of environmental controls, teacher occupational clusters, student lounges and canteen areas, library technical resources centers, centralized receiving areas, and facilities for the handicapped.

Vocational Teacher Education

Effective programs of teacher education are essential for the development of sound programs of vocational and technical education. The first Federal vocational education legislation authorized the expenditure of funds for teacher education. Subsequent laws increased this support. Within each State, the board of vocational education has responsibility for promoting teacher education programs which are usually conducted by a college or university under contract with the board.

Teachers of vocational and technical education are recruited from many different sources. Most instructors in agriculture, distribution, home economics, and office occupations are educated in college. Furthermore, teachers of agriculture, and distribution and in the health occupations are usually required to be experienced in the field.

Trade and technical teachers often come from industry and may or may not have had college or other postsecondary training. While formal education is highly desirable, competence in the occupation for which they will teach is considered more important. Some instructors with a provisional certificate may enter vocational teaching without a college degree. Professional education courses are provided for teachers while they are inservice, and they are encouraged to complete their college program. Many vocational education teachers have earned master's degrees; many vocational educators, administrators, and research specialists hold doctoral degrees.

Although there are variations in teacher education in the different States, all States have adopted standards, such as courses in general or liberal arts education; basic technical subject

TABLE 22 NUMBER OF TEACHERS OF VOCATIONAL CLASSES BY LEVEL OF PROGRAM: FULL AND PART-TIME, 1965 AND 1966

Level of program	Number, 1965	Number, 1966	Percent increase, 1965–66
Secondary	41,366	49,623	20.0
Full-time	13,382	16,178	20.9
Part-time			
Postsecondary	6,963	9,728	39.7
Full-time	6,620	9,465	43.0
Part-time			
Adult programs	4,973	4,064	(—18.3)
Full-time			
Part-time:	14,836	17,221	16.1
Secondary teachers	5,021	6,847	36.4
Postsecondary teachers	29,218	30,569	4.6
From business and industry			
Total unduplicated count	109,136	124,042	13.7

Note.—The count of adult-program teachers who teach in more than 1 program has been adjusted to eliminate duplication in the totals.

SOURCE: Tabulated from State reports on file in the Division of Vocational and Technical Education, U.S. Office of Education.

matter; and professional education including psychology, and methods of teaching. Some States sponsor special institutes to bring teachers up to date with contemporary technological advances. Often the services of business and industry are utilized to provide this training.

More than 125,000 vocational education teachers were employed in 1966; an estimated 213,000 will be needed in 1970. Teacher education institutions will be called upon to offer courses for the more than 86,000 persons who will begin teaching during this 4-year period and to provide many kinds of updating and refresher programs for employed teachers.

Research in Vocational Education

Business, industry, and nearly every other element of the American social structure rise toward new developments and innovations on the basis of comprehensive research results. In the United States grants from Federal and other sources are available to colleges, universities, other public or nonprofit private agencies and institutions, State boards, and local educational agencies for training and research activities concerned with experimental, developmental, or pilot programs.

The Vocational Education Act of 1963 requires continuous evaluation and provides States with additional administrative funds to conduct more and better research. It reserved 10 percent of the sum for grants to States to be expended for support of research. During the fiscal year 1966, $17,282,605 was expended by the Office of Education for research provided under two broad classifications—institutional programs and individual projects.

Institutional support for research programs provides funds for research coordinating units, teacher-administrator inservice training, and vocational education research centers. Individually supported research programs provide funds for research projects in priority areas, such as: (1) program evaluation, (2) vocational education curriculum, (3) the personal and social significance of work, (4) personnel recruitment and development, (5) program organization and administration, (6) adult and continuing education, and (7) occupational information and career choice.

In the spring of 1965 two research centers were established, one at North Carolina State University, Raleigh; the other at the Ohio State University, Columbus. Besides research studies, these centers conduct educational programs designed to upgrade research workers. They provide continuing reappraisal of the role of vocational and technical education in the United States and assist in evaluating and disseminating research findings in this field.

The results of federally sponsored research are disseminated by the Office of Education through the Educational Resources Information Center. Résumés of completed and ongoing research are listed monthly in the U.S. Office of Education periodical, *Research in Education*, which is available by subscription through the U.S. Government Printing Office, Washington, D.C. 20402.

Vocational Guidance

More than 22,000 jobs in the United States are documented in the *Dictionary of Occupational Titles* published by the U.S. Department of Labor. The required preparation for about 90 percent of these jobs does not include a baccalaureate degree.

Vocational guidance assists youths and adults in the complex effort of selecting an occupation. The major purpose of the vocational guidance program is to provide students with basic information and to develop the understandings necessary for wise decisions concerning vocational choices and adjustments. Guidance precedes enrollment in vocational education. More than 80 percent of the secondary school students have access to guidance counselors. These counselors discuss occupational selection with the student and provide testing services for measuring his aptitudes and capacity for enrolling in an occupational training program. The counselors also assist students in the selection of a training curriculum in high school. Guidance service is also available to students while they are enrolled in occupational training. Counselors help them to evaluate their progress, and to obtain placement after completion of the vocational training program. Vocational education instructors aid in the placement and followup of graduates.

The guidance service is also available to graduates after they become employed. Counselors frequently keep in touch with workers informing them of changes in occupations, opportunities for advancement, and the availability of additional vocational education programs. They

assist former students with employment difficulties, including relationships with their associates and employers as well as with social and economic problems.

Financing Vocational Education

Since the first national vocational education act was passed in 1917, the Congress has granted Federal funds to the States on a matching basis to aid them in the maintenance and further development of programs of vocational and technical education. The local communities, the States and the Federal Government all share in the financing of these programs.

A total of $792 million was spent for vocational and technical education in 1966. The Federal Government provided $235 million; the States, $213 million; and local communities, $344 million.

The following breakdown of these expenditures by occupational categories and by percent of expenditures does not include funds spent for construction, research, and administration.

The Vocational Education Act of 1963 provided for the financial support of programs of vocational and technical education by purpose. The percentage distribution of expenditures for these purposes in 1965 is shown in the illustration on page 38 (Fig. 6).

OCCUPATIONAL PROGRAMS

Agricultural Education

Vocational education in agriculture aims to train present and prospective farmers and to prepare youth and adults for careers in other agricultural occupations. Appropriate instruction is available in public high schools and postsecondary schools. In 1966, there were 907,368 youth and adults enrolled in vocational agriculture programs.

Students enrolled in vocational agriculture conduct farming programs or are employed on a part-time basis in agricultural occupations to obtain experience. Vocational agriculture teachers visit the students on the job to show them the practical application of the class-

TABLE 23 EXPENDITURES BY OCCUPATIONAL CATEGORIES

Occupational Category	Total 1966	Percent of total	
		1964	1966
Agriculture	$88,538,638	23.3	15.3
Distribution and marketing	27,486,718	4.5	4.7
Fisheries	679,974	0.1	0.1
Health	21,891,792	3.7	3.8
Home economics	109,917,698	27.0	19.0
Office	85,473,102		14.9
Technical	58,556,327	10.5	10.1
Trades and industry	186,124,443	30.9	32.2
Totals	578,668,692	100.0	100.0

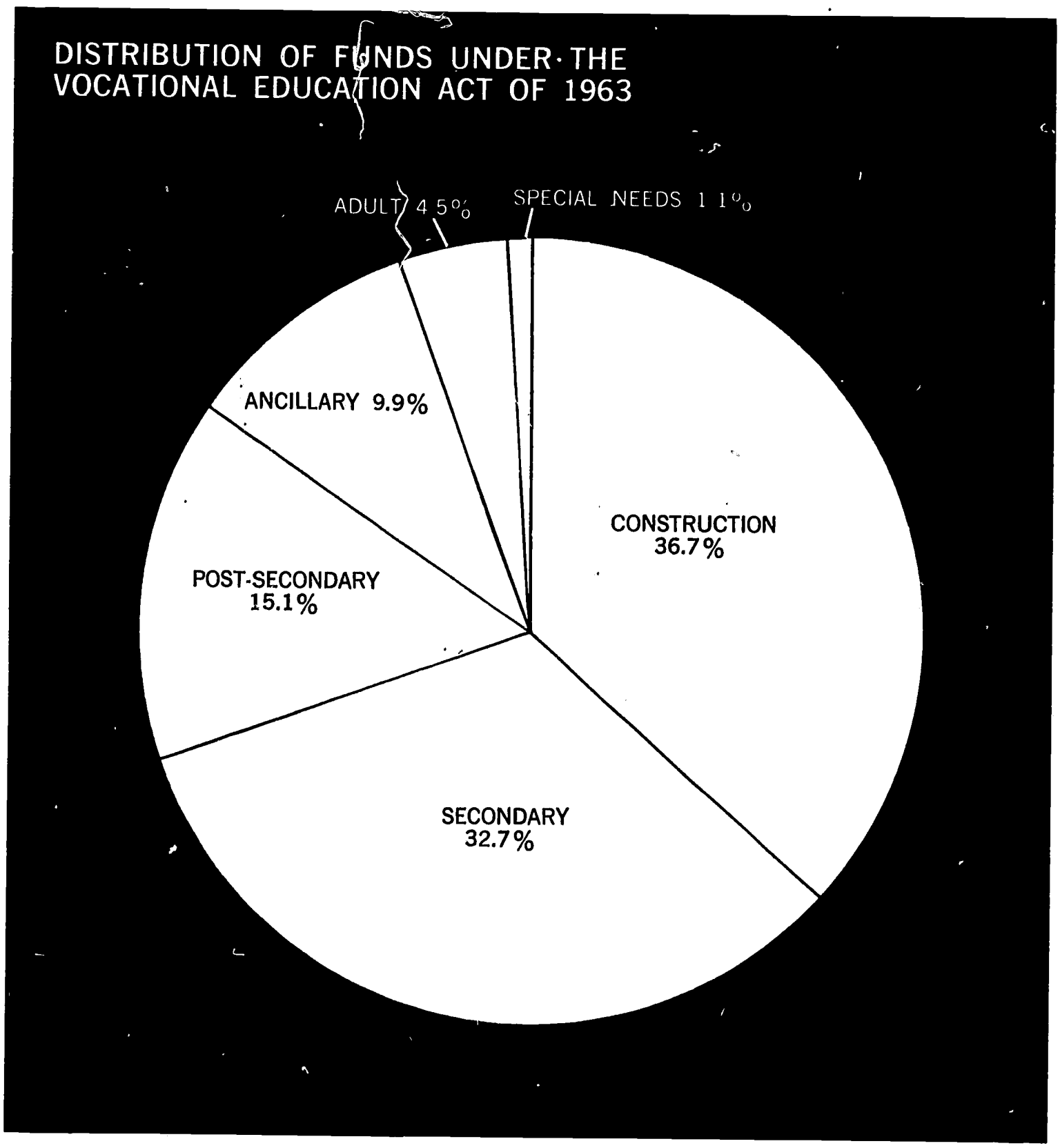

DISTRIBUTION OF FUNDS UNDER THE VOCATIONAL EDUCATION ACT OF 1963
ADULT 4.5%
SPECIAL NEEDS 1.1%
ANCILLARY 9.9%
CONSTRUCTION 36.7%
POST-SECONDARY 15.1%
SECONDARY 32.7%

FIGURE 6

room instruction. The teachers are graduates of agricultural colleges and have received special training to prepare them for this work.

Vocational agriculture classes study crop and livestock production, agricultural mechanics, management, and other agricultural areas. Special classes are offered for students preparing for one of the other agricultural occupations. Emphasis has been given in recent years to the establishment of training programs in agricultural mechanization, agricultural supply occupations, processing of farm products, ornamental horticulture, and agricultural resources. In 1966, there were 112,338 youth and adults enrolled in courses to prepare for employment in off-farm agricultural occupations.

Farms are becoming larger in the United States and the number of farms is declining. The need for instruction in agriculture has become more important due to the mechanization of farms; the high average investment per farm; and the use of fertilizers, sprays, dusts, and chemicals in crop and livestock production.

Vocational agriculture departments are equipped with an agricultural mechanics shop, a laboratory, and frequently a greenhouse and a school farm—in addition to the regular classrooms. Many departments have a school forest.

Programs are also offered for young farmers and for adult farmers who are established in a farming business, but who recognize the need to keep up to date with the latest practices in agriculture and increase their efficiency. Classes usually meet in the evening in the vocational agriculture department.

The Future Farmers of America

The Future Farmers of America is the national organization for students of vocational agriculture in public secondary schools. It is an educational, nonprofit, nonpolitical farm youth organization of voluntary members. The major objectives are to develop agricultural leadership, character, thrift, scholarship, cooperation, citizenship, and patriotism.

Members participate in numerous activities designed to stimulate their working together in programs for individual and community betterment. The organization is composed of State associations and local chapters. The Future Farmers of America experience supplements the formal study of vocational agriculture classes and thereby encourages members to learn to be competent and successful farmers or to prepare for careers in other agricultural occupations.

Distributive Education

Distributive education is a program of instruction in marketing, merchandising, and management. Young people and adults who enroll for this study develop competencies in the distributive occupations of such businesses as retail and wholesale trade; finance, insurance and real estate; services and service trades; manufacturing; transportation and utilities; and communications. Distributive activities stimulate both production and consumption and represent a key factor in the attainment of (1) a high market value for the Nation's output of goods and services, (2) an enviable standard of living, and (3) a wide range of employment opportunities for youth and adults in the labor force. Distribution concerns all aspects of how goods go from producers who create them to the homes and businesses that want and need them.

Boys and girls who enroll for training while in high school select the type of business in

which they choose to begin a career. Through group and individualized instruction the teacher helps them develop competencies in marketing required by the business chosen and others similar to it. Also developed are needed social and tool skills along with understanding of the economic factors that affect the business. A period of paid, part-time employment supervised by the teacher and a local employer is generally scheduled as part of the instructional plan.

Students who wish more advanced training may enroll in a distributive education curriculum offered at a community or junior college. Here marketing studies are more concentrated and aim to prepare students for supervisory or specialist positions. Some programs lead to an associate degree after 2 years of study.

Instruction provided for adults is designed to aid employed persons advance in their work or to update and improve their qualifications. Subject matter is frequently organized into a series of courses leading to a certificate of achievement. Short unit courses are also provided. Adult classes are held at a time and place convenient to the enrollees.

Distributive education is part of publicly supported vocational education. Programs are staffed by teachers especially qualified by education and occupational experience. At its best, distributive education is sensitive to technological advancements and uses the resources of the business community to assure students and employers that training programs are realistic and forward-looking.

Distributive Education Clubs of America

Distributive Education Clubs of America is the national youth organization of students enrolled in high school and postsecondary school distributive education programs. As an integral part of distributive education, the club program affords members numerous opportunities to participate—individually and in groups—in activities which contribute to business and professional maturity, civic betterment, and social adjustment.

Vocational Education for the Health Field

Careers in the health field offer youth and adults almost unlimited opportunities. These range from minimal skill jobs requiring only short preservice or on-the-job training, through the more technical occupations with their longer periods of preservice training, to the highly technical and professional careers which demand substantial preparation in science, technology, the liberal arts, and specialized subject areas.

Nearly 3 million people were employed in health occupations during 1966; they accounted for 3.7 percent of the total labor force in the United States. As the Nation progresses toward public responsibility to assure adequate health services for all citizens, greater demands will be made upon the educational system to prepare increasing numbers of health workers for existing jobs, and to staff new, emerging occupations.

Vocational training may be provided for any of the health occupations that are categorized as subprofessional, requiring training and education at less than the baccalaureate degree. Educational programs range from the high school level through postsecondary school offerings in community colleges. Training is available to in-school youth and adults seeking their first entry into a specific occupation, to adults in need of re-

training, and to postsecondary school youths and adults preparing for careers that require study at community college or highly technical levels of education.

State and local health agencies act as partners with the schools in providing clinical resources necessary to the instructional program and serving as advisers to the schools using the health agency's facilities.

In 1967, nearly 125,000 persons received training that qualified them as either practical (vocational) nurses, associate-degree registered nurses, dental hygienists, certified laboratory assistants, X-ray technicians, or for employment in other health occupations.

The emergence of health science and technology curriculums in secondary schools is a recent development. High school students interested in health careers add these courses to their required academic units. On completing the health science and technology instruction, the students are qualified for employment in minimal skill jobs in health agencies or they may elect to continue their education for health careers at the technical or professional level. In 1966, about 10,000 high school students were enrolled in health vocational programs.

Home Economics Education

Home economics education helps youth and adults to meet the responsibilities of home and family life, as well as to prepare for employment. It is designed for those who have or will have homemaking responsibilities and/or those who have entered or are preparing to enter gainful employment in an occupation which involves the knowledge and skills of home economics.

A complete home economics education program includes instruction in child development, clothing and textiles, consumer education, family health, family relations, food and nutrition, home management, and housing and home furnishings. Nearly 1,900,000 persons were enrolled in vocational home economics education in 1966.

The acquisition of competencies needed for employment and advancement is the major purpose of preparation for an occupation utilizing home economics. Instructional content is selected from home economics areas to meet the unique requirements of specific occupations and is coordinated with appropriate learning experiences in the field, the laboratory, and in part-time employment. Home economics occupations include those which provide services to families in the home and similar services to groups in other situations and those which assist professionals in home economics and related fields working in industries, agencies, and organizations. Examples of occupations related to home economics are: food service worker or supervisor, school lunch manager, child care assistant, homemaker-home health aide, custom dressmaker, interior decorator's assistant, and institutional housekeeper.

Future Homemakers of America

The Future Homemakers of America is the national high school organization for home economics students. Composed of State associations and local chapters, it functions as an integral part of home economics education in the secondary schools. It affords opportunities beyond the home and school to foster further development of leadership and responsibility and to acquire additional occupational competencies.

Office Education

The primary purpose of education for office employment is to provide individuals with skills and abilities to meet local, State, and National needs for officeworkers. In 1930, one in 12 workers was in an office occupation; in 1960 the figure was one in eight; and it is estimated today that one in five employed persons is in office work.

Education for office occupations provides initial, refresher and upgrading programs. It leads to employment and advancement of individuals in work that involves recording and retrieval of data, supervision and coordination of office activities, internal and external communications, and the assembling and reporting of information.

Education in this field may extend to the level of training the individual wishes to attain—from routine office work to complicated administrative responsibilities. The scope of office education occupations encompasses accounting and computing; business data processing systems; operation of office machines, filing, and general office clerical activities; information communication; materials support; personnel, training and related functions; stenographic, secretarial, and related services; supervision and administrative management; typing and miscellaneous office work.

Office occupations education programs are conducted in many settings, including: high schools; postsecondary schools; adult preparatory and adult supplemental to employment programs; and, programs designed for persons with special educational disadvantages. In 1966, there were 1,200,000 youth and adults enrolled in office education courses.

Technical Education

Technological changes are occurring at an increasingly rapid rate. Meanwhile, engineering education is moving further into the realms of science, and away from application-oriented courses. The gap between the engineer and the skilled craftsman focuses attention on the need for highly skilled technicians. At least 200,000 new technicians in the physical and life sciences will be needed annually in the United States during the next 10 years.

There are many kinds of technicians, just as there are many kinds of professional engineers and scientists. The physical sciences and related engineering fields employ many technicians (chemical, metallurgical, mechanical design or production, civil, electrical, electronics, and architectural technicians). Other technicians are skilled in the applied life science fields (medical laboratory, dental hygiene, dental laboratory, radiological, agronomy, horticultural, food processing, oceanographic, animal science, soil science and forestry technicians).

Technical education is designed to equip individuals for employment that requires scientific knowledge and technical skills. The instruction provides training or retraining for: (1) Those preparing to enter a technical occupation upon the completion of instruction, and (2) those who have already entered a technical occupation but need to upgrade or update their knowledge and technical skills.

Programs to educate technicians include study of such specialized areas as: technologies, plant and animal science, medical science, and other fields of applied science.

One method of comparing groups of occupations is to consider the relative amounts of physical effort and mental effort demanded from

the worker. The skilled craftsman gives most of his energy to manipulating the tools of his trade. The engineer or scientist, on the other hand, spends most of his time thinking through various processes and problems. The occupations between these extremes contain the technician jobs. They usually involve some manipulative work along with considerable amounts of mental effort.

Technicians are persons who have the scientific knowledge and competencies in some recognized branch of science to support the work of professional personnel. They are educated in rigorous 3-year high school and 2-year post-secondary programs offered by a variety of institutions (comprehensive high schools, area vocational-technical schools, technical high schools, technical institutes, community and junior colleges, and 2-year technical departments of 4-year colleges).

Technical education curriculums usually provide specialty courses which include basic and advanced courses in the pertinent technology—electronic, plant science, or medical laboratory, for example. Specialty courses may occupy 40–60 percent of the curriculum; mathematics courses (algebra, trigonometry, analytical geometry, calculus) and basic science courses may account for from 20–30 percent of the schedule time. Auxiliary or supporting courses such as drafting, shopwork, and report writing take approximately 10 percent of the allotted time. Some 10–15 percent of the curriculum is distributed among general education courses, including communication skills, humanities, social studies, and health.

Trade and Industrial Education

Trade and industrial education prepares persons for employment, upgrades employed persons, and retrains workers in a wide variety of trade and industrial occupations. Instruction is provided in: (1) Basic manipulative skills and occupational safety through a combination of shop or laboratory experiences simulating those found in industry; (2) related instruction such as mathematics, drafting, and science; and (3) other subject matter needed by the workers to perform successfully in the occupation. In 1966, nearly 1,227,000 youths and adults received training through the various types of trade and industrial education programs:

1. Full-time and part-time preparatory programs for youth, adults and persons with special needs; these vary in length from 1 to 4 years.
2. Supplementary and extension programs which equip employed persons with manipulative skills training and instruction in occupation-related subjects.
3. Cooperative programs involving a combination of employment and organized instruction in a school.
4. Apprenticeship including scheduled work experience and organized related instruction.
5. Part-time general continuation programs designed to increase the civic education of employed persons.

Both public and private schools may offer trade and industrial education in a community. In addition, many programs are conducted in correctional institutions and by private industries and trade unions.

Trade and industrial education serves a wide spectrum of the industries in our national economy. Programs are provided for workers on practically every employment level of a trade, industrial, civic, or service organization. The curriculum is designed to meet the needs of the trainee, the occupation, and the industry concerned.

Teacher education programs are planned and supervised by qualified vocational industrial teacher educators. Occupational proficiency of the instructor is developed under actual wage earning situations in a trade, service, industrial, or technical occupation.

The plans for shop, laboratory, and related classroom facilities are based upon occupational analyses and recommendations of vocational industrial advisory committees. The instructional plant and equipment are comparable, where practical, with those found in industry.

Job placement, coordination and trainee followup are integral parts of the program.

Vocational Industrial Clubs of America

Vocational Industrial Clubs of America (VICA) was founded to serve high school students in trade and industrial and technical education programs. Club activities and objectives complement and supplement the educational process with which the club is identified. The organization provides the opportunities for personal growth and development of members, including their civic, social, and leadership responsibilities, as well as their occupational skills.

Youth and Adults With Special Needs

Many persons have not had the advantages of vocational education classes because of one or more handicaps, for instance:

(1) Approximately 5 percent of the population is mentally retarded.

(2) Some persons have emotional problems which interfere with their ability to learn.

(3) There are persons who learn at a different pace and in a different way.

(4) There are the physically handicapped who, because of loss of limb, sensory debilitation, or disease of the nerves, require special equipment and special teaching to enable them to acquire a job skill.

(5) There are a number of persons whose incomes are too low to provide their families with the minimum of necessities of food, clothing, and shelter.

The latter live in poor environments (often in a geographically isolated rural area or a crowded urban slum), are poorly educated, unskilled, or unemployed, and their limited education has little relevance to their needs.

Vocational educators are becoming concerned about these various categories of persons with special needs. The Vocational Education Act of 1963 provides support for special services so that persons with academic, socioeconomic, and other handicaps can be helped to succeed in the regular vocational education programs.

In many States programs are being developed to focus on serving the particular requirements of handicapped persons. For example, classes have been organized to train mentally retarded young women in practical nursing; graphic arts education is being offered to the deaf; men and women receiving welfare assistance are being given vocational training to enable them to become self-supporting. There has been an expansion of vocational education in remote rural areas which heretofore have been neglected.

In the course of vocational education for persons with special needs, attention is being given to nutritional problems (breakfasts and lunches are served at little or no cost); physical disabilities including impaired vision and hearing are being attended to, and psychiatric services are made available for those with emotional problems.

Occupational Training for the Unemployed and the Underemployed

The Manpower Development and Training Act of 1962, as amended, represents the U.S. Government's commitment to a national manpower policy that each person be guaranteed the opportunity to develop his potential abilities and to gain the satisfaction of being self-supporting. Provisions of the act serve those who are unemployed or underemployed through support of educational programs to develop the skill that they need for gainful employment. It also serves to relieve shortages in the supply of persons trained in those skills for which there is a need. Training is also provided to those workers who have lost their jobs, in order to keep them abreast of the latest technological advancements in their occupations. Even with these programs, many individuals cannot find jobs while acute shortages of trained workers exist in many industries. Untrained people are hard to employ. They frequently lack not only occupational skills but also the ability to read, write, and communicate. In many instances they have no commitment or long-term attachment to the labor force.

A program administered by the U.S. Department of Labor and the U.S. Department of Health, Education, and Welfare makes provisions for training to be carried out on an individual project basis. For each project the Department of Labor is responsible for: (1) Ascertaining that a need for training exists; (2) selecting and referring persons to training; (3) providing allowance payments for income maintenance; (4) assisting persons who have completed occupational training to find jobs; and (5) conducting a followup program to assess the effectiveness of the training. The Department of Health, Education, and Welfare is responsible for providing the necessary training, most of it through the State departments of education, although some is provided by unions and industries.

The type of training offered is determined to a great extent by the needs of the local area and the characteristics of the persons to be trained. All persons referred to manpower development and training projects need training to develop specific occupational skills. In addition, many trainees also require: basic education to improve the academic level at which they function; related instruction which emphasizes academic experience necessary for success in a particular occupation; communications skills which help the trainee to understand instructions, to speak, and to listen; and, instruction to help the trainee acquire those attitudes necessary to remain an active member of the labor force. A training project may provide any or all types of training mentioned above.

Some 750,000 persons have been trained in over 600 different occupations since passage of the Manpower Development and Training Act of 1962. About 75 percent of these persons have completed training and have found gainful employment. The majority of the trainees are men who are heads of households. A large portion of them are under 22 years of age—youth who in many instances had not completed high school and had not received occupational training. They had little or no experience as productive workers.

Another untapped manpower source is the "older worker," who is defined as being over 45 years of age. Frequently, these workers need training only to refresh their skills. The success of this phase of the program depends upon the

willingness of employers to hire these people after they have been retrained.

Training may be furnished under three basic arrangements: (1) Institutional training conducted in a classroom setting; (2) on-the-job training at the place of work during production time; and (3) coupled training both in the classroom and on-the-job, depending upon the skills that are to be mastered.

The vocational technical high schools are assuming greater responsibility for the training of unemployed and underemployed persons in classroom-shop situations. The facilities used for training include vocational schools, private schools, junior colleges, vacant school buildings, deactivated military bases, and rented warehouses, shops, and garages.

A major innovation of the manpower development and training program has been the skills center of which there are approximately 100 now operating throughout the country. A skills center provides a variety of services to trainees. It offers preparation for a number of different occupations as well as basic education, related instruction, communication skills, and prevocational training. Counselors play an important role in skills center operations. They assist the trainees to determine their occupational choices, help them obtain community services for themselves and their families, and assist them to adjust to the discipline of training. Most training projects are operated 40 hours per week.

Part of the coupled training program is conducted in conjunction with the regular apprenticeship which requires approximately 144 hours of related instruction during the first year. However, formal apprenticeship is not the method through which most people enter the labor force; the number of apprentices has been declining.

EVALUATION

It is essential to determine how effectively programs of vocational and technical education are meeting their objectives and to identify the major strengths and weaknesses of the programs. Studies underway are designed to determine: (1) Whether specific courses reach and

TABLE 24 STATUS OF PERSONS COMPLETING VOCATIONAL EDUCATION PROGRAMS IN ALL AREAS DURING FISCAL YEAR 1965-66

	Number	Percent
Completed program requirements	606,872	100
Available for placement	347,626	57
Not available for placement	219,483	36
Data not available	39,764	7
Not available for placement	219,482	100
Entered Armed Forces	45,517	21
Continued school full-time	141,302	64
Other reasons	32,663	15
Available for placement	347,626	100
Placed, field trained or related	275,370	79
Placed, unrelated to training	42,529	12
Placed part-time	15,083	5
Unemployed	14,644	4

SOURCE: *Report of the Advisory Council on Vocational Education, 1968: Planning for the Future.*

interest students; (2) whether graduates adjust successfully at work and in the community; (3) whether placement of graduates corresponds to their training; and (4) the scale of earnings of graduates. Internal evaluations are proving helpful. These efforts attempt to measure the leadership abilities of staff members, teacher effectiveness, the capacity of ancillary services, and the quality of equipment and facilities. New emphasis is being given to the evaluation of programs of occupational work experience for disadvantaged youth.

PLANNING FOR THE FUTURE

Over the years since 1917, much progress has been made in the development of sound educational programs designed for those who have entered or are preparing to enter the Nation's labor force. The need for such instruction has not yet been fully met. Research studies and programs of evaluation are being utilized to determine the needs and directions for the future expansion of vocational and technical education.

The immediate goal is to effect cooperative planning by the Federal Government, the State, and local communities to make high quality programs of vocational and technical education available to every youth and adult who needs training. These programs, while geared to meet manpower needs for a growing economy do not stop there. The fullest development of the Nation's human resources is a major concern as well.

School programs which were successful in the past will no longer be adequate for the future. The quest for new, imaginative, and creative programs and techniques must be continued in order to develop and adjust curriculums to meet the changing needs of students. The focus on the individual is of paramount importance throughout this endeavor.

As the Nation faces an evolution in the "world of work" it is urgent that every individual acquire more knowledge and skills to meet the demands of a changing labor market. These changes place greater demands on educators and others concerned to develop more insight and effective procedures to help youth make adequate adjustments to their environment.

Speaking at the dedication of a vocational education center near Washington, D.C., President Lyndon Baines Johnson recently stated: "The end of all schools must be life or public education will fail."

U. S. GOVERNMENT PRINTING OFFICE : 1968 O - - -274