

**Part——IV**

# **Epilogue**

## **Education and the Industrialization of Japan**

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### **I. Japan's Development and Education**

At present, Japan has come to be recognized in the world as an economic power and a trade power; many recognize that there has been a high educational standard in Japan which provided the foundation for its growth.

A study revealed a correlation between high educational standard and Japanese enthusiasm for education: The study was part of an international survey with regard to the percentage of children having their own room to study (Nippon Seishōnen Kenkyūjo, International Children Survey, 1979). It was assumed that in Japan, where the housing conditions have been equated with "rabbit hutches," the percentage of children "securing" their own rooms could not possibly be high. Nonetheless, the survey results surprisingly showed the highest rate to be among Japanese children.

The fact that 76% of elementary children have their own study rooms denoted that despite inadequate housing, parents sacrifice their space for their offspring. A perusal of the data on Japan revealed that over 70% of fourth graders and as many as 90% of sixth graders had their own rooms. Furthermore, a comparison between urban and rural households revealed that there were higher rates in the urban areas with smaller housing space than in the rural areas. Japanese parents give utmost priority to the education of their children who in turn are urged to study and excel. Although this contains many social problems, it is a reality which reveals the educational zeal of the contemporary Japanese.

### 1. Interest in Japan

The disposition of the Japanese which provided the foundation for Japan's economic development was already marked in the country's economic recovery and growth after World War II. In other words, despite having lost one quarter of the nation's material wealth, such as industrial facilities, transportation, and communication, Japan, together with West Germany, achieved a miraculous recovery. The recovery was possible due to such human factors as knowledge and technology which had been accumulated from the prewar days, and the key to subsequent growth rested on an accumulation of educational resources. Foreign literature regarding Japanese education clarifies this point. A bibliography compiled by Ulrich and Voss is an excellent work which almost completely covers the literature in the various Western languages (some one thousand theses and books) published in the postwar period.

The role played by education in the modernization of Japan has aroused the academic interest of researchers in various advanced countries. At the same time, it is also becoming a target of great interest among the people of developing countries who are intent on learning from the Japanese experience.

### 2. Modernization and Education

Many Western scholars have highly evaluated the role of education in the modernization of Japan. One such scholar, E. O. Reischauer, stated as follows:

High literacy rates and excellent educational standards are also major reasons for Japan's success in meeting the challenge of a technologically more advanced West in the nineteenth century and for its subsequent achievement of a position of economic leadership. Nothing, in fact, is more basic to Japan's success than is its educational system.

Moreover, R. P. Dore and H. Passin assert that due to the foundation of the modern educational system that was completed in the Tokugawa period, modernization from the Meiji period onwards owes a great debt to the heritage of the Tokugawa period. Dore sees Japan alone having maintained independence and transformed itself into an advanced industrial nation among the various nonWestern countries in relation to the diffusion of education before Meiji. He estimates that at the end of the Tokugawa period 45% of males and 15% of females had some sort of schooling (temple schools, private classes, or fief schools), and thus the Japanese possessed a considerably high level

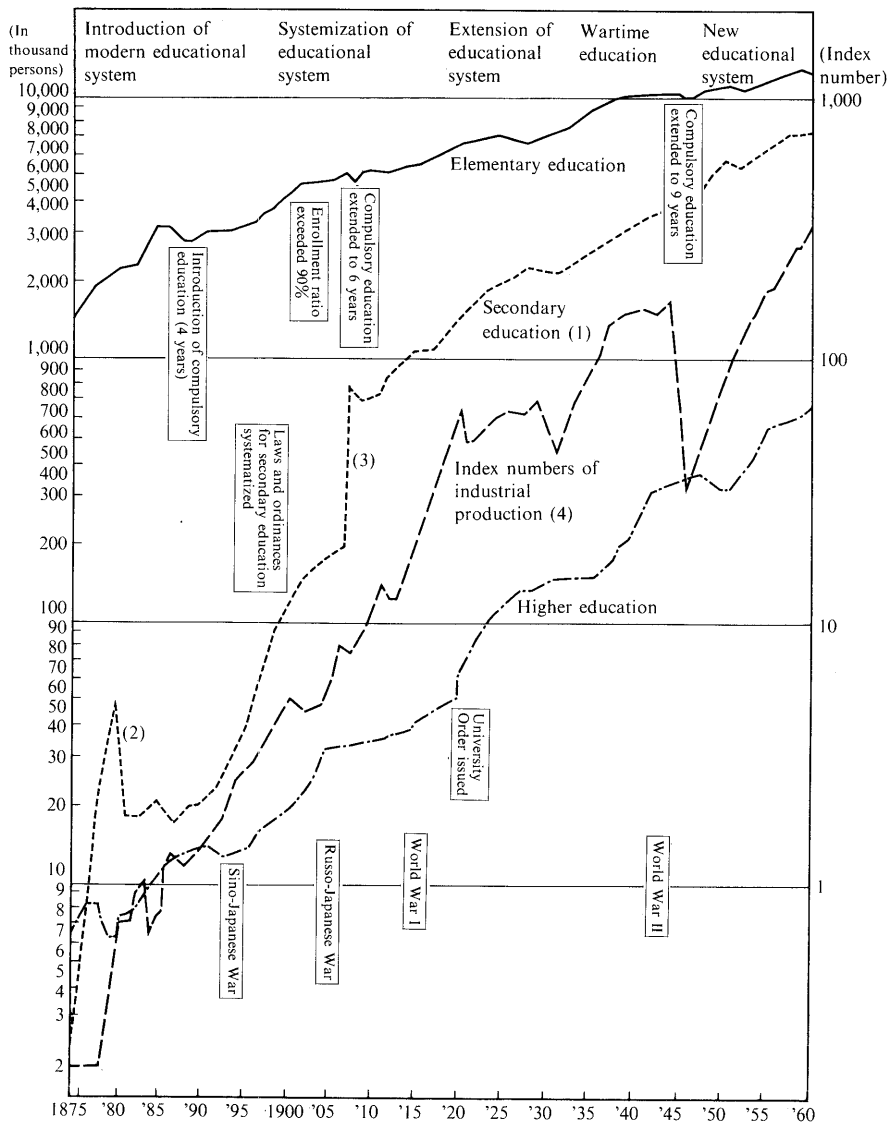


Fig. 13.1. Enrollment in Elementary, Secondary, and Higher Educational Institutions, 1875-1960

Notes: (1) Not including semi-secondary education. (2) By the Education Order of 1878, some sub-standard schools were excluded from the number of regular secondary schools. (3) Pupils of upper elementary schools were counted as secondary school enrollment. (4) 1935 = 100.

Source: Ministry of Education, *Japan's Growth and Education: Educational Development in Relation to Socio-economic Growth* (1963), p. 29.

of literacy. These figures for the mid-nineteenth century compare quite favorably with those of the advanced countries in the same period. (The percentage for males was the same as that in Italy and the same as that in France.) The prevalency of temple school education contributed to the development of modern society after the Restoration and nurtured the desire to absorb new Western civilization. On the other hand, the inauguration of the new school system was made easy by the existence of temple school teachers and the buildings themselves. (Thus a school system modeled after that in France was started five years after the Meiji Restoration in 1872.)

### 3. Economic Growth and Education

Education not only strives for the character formation of individuals but also contributes to socioeconomic growth. Figure 13.1 clearly shows parallel trends between economic growth and educational development in Japan. Although there was a period around 1887 when the enrollment rate declined, by the beginning of the present century nearly all children were enrolled in a six-year compulsory education program (see Figure 13.2). Moreover, concurrently with the decline in the number of non-enrolled, the number of illiterate people also decreased (see Figure 13.3).

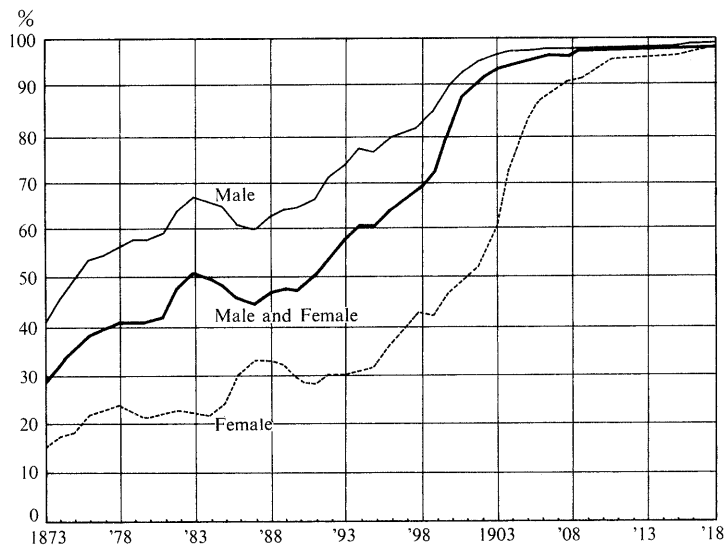


Fig. 13.2. Compulsory School Enrollment, 1873-1918  
Source: Same as Fig. 13.1, p. 31.

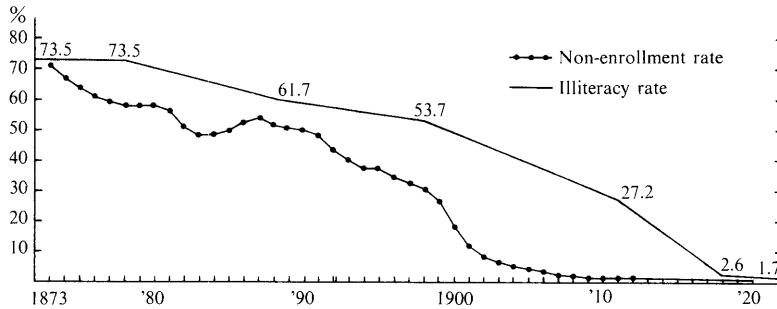


Fig. 13.3. Non-enrollment and Illiteracy, 1873–1920

Source: Toyoda Toshio, *Ajia no kyōiku* [Education in Asia] (Ajia Keizai Shuppankai, 1979), pp. 54–55.

Table 13.1. Social Background of University of Tokyo Students, 1878–85(%)

Year	Peers	Ex-Samurai	Commoners
1878	0.6	73.9	25.5
1879	0.5	77.7	21.8
1880	0.9	73.6	25.5
1881	0.0	51.8	48.2
1882	0.1	49.1	50.8
1883	0.1	52.9	47.0
1884	0.2	50.2	49.6
1885	0.2	51.7	48.1

Note: Figures from 1878 to 1880 are for students in the faculties of law, science, and literature. Figures from 1881 to 1885 are for students in the faculties of law, science, medicine, and literature.

Source: Ministry of Education, *Japan's Growth and Education* (1963), p. 34.

The expansion of the school system was built in the shape of a pyramid with primary education as its base. Although Tokyo Imperial University was the only higher educational institution initially, as shown in the distribution of the social background of the students at the university (see Table 13.1), there was a marked increase in the number of commoners. (The ratio between the children of ex-samurai and those of commoners which had been three to one in 1878 became one to one five years later.) It can be said in this regard that Japanese education in the Meiji period, which was characterized by secularism and egalitarianism, was one step ahead of most of the education in the Western countries. A systematic chart of the school system in 1900 was as is shown in the Appendix. Moreover, when the period from the

Meiji era onwards is seen from the viewpoint of vocational education, vocational education that reflected the progress in industrialization underwent considerable transformation and transfiguration (see Figure 13.4 and Appendix).

#### 4. Growth in Advanced Industry and Education

In the early Meiji period, the population in the primary industry centering on agriculture was over 80% of the total. However, light industry, with the spinning industry at its core, was established during the period from the Sino-Japanese War (1894–95) to the Russo-Japanese War (1904–5). Compulsory education was extended to six years in 1907, and the enrollment rate was maintained at a near perfect level. There was also a gradual expansion of secondary education, and the ratio of children entering secondary education from primary education grew from 4.3% (1895) to 15% (1920) to 25% (1940). When the ratio of those continuing secondary education is studied by region, it can be seen that it clearly corresponded to the progress in industrialization. (While the growth rates were high in Tokyo and Osaka, they were low in Kōchi, Miyazaki, and other areas.) Moreover, although the development of higher education was activated after World War I, the ratio of students enrolled in higher education as against the same age population was no more than 2.5% even in 1935.

Remarkable progress in the quantitative expansion of higher education was made from 1960 onwards. In 1970 the ratio of those entering university exceeded 30% and there was the emergence of a highly educated society. As a result, the elite status enjoyed by university graduates disappeared and many of them who failed to hold managerial and professional careers came to be employed in clerical and sales occupations which thus far had been carried out by the graduates of secondary education.

#### 5. Deficiency of Prewar Education

Opinions that highly assessed the role of education in Japan's modernization have been given already. At the same time, however, there are of course opinions that pointed out the limits and deficiencies of prewar education. Hired foreign teachers invited by the government in the Meiji period had already criticized the premodernity and unscientific nature of the educational content. Additionally, while some pointed to the class distinction in the double-track system of education, others criticized superpatriotism in moral education. None of the criticisms are erroneous. However, under the slogans of "Civilization and Enlightenment," "Increase Production and Promote Industry,"

“Enrich the Country and Strengthen the Military” and “The Japanese Spirit and Western Learning,” the nation urged the populace to catch up with the advanced countries as quickly as possible. Furthermore, Japan was in such a hurry to imitate and introduce Western civilization that Japan came to eliminate rationalism, criticism, and individualistic spirit, all of which existed as the basis of Western civilization. Hired foreign teachers who thoroughly recognized the enthusiasm and capabilities of their Japanese students could not overlook the negative aspects of Japanese education.

## II. Postwar Industrial Growth and Technical Education

The theme here is to clarify the manner in which technical education contributed to Japan's industrial development. There are naturally many factors involved in economic and industrial development. However, when the major role fulfilled by technological innovation in industrial development is taken into consideration, the contribution made by technical education, especially by advanced technological education, must be stressed. (In conjunction with the industrial progress made in the postwar period, vocational education as secondary education lost its former highlighted position. Skills and techniques taught at vocational schools became overshadowed by general regular educational subjects.)

The salient aspects of technological education which helped in Japan's industrial development up to the present consist of the following three points: (1) sudden quantitative expansion of technological education, (2) adaptability of technological education to technological innovation, and (3) in-service technological training.

### 1. The Quantitative Expansion of Technological Education

Many high-caliber scientific engineers have been indispensable for the expansion period of industrial activities. And technological education responded sufficiently to this demand made by the industrial circles. This is proven simply by the number of graduates from the technological departments, especially the departments of science and engineering at the various universities. The expansion policy implemented by the government was the inauguration of universities under the new system. Elite training in seven imperial universities at the center was greatly broadened suddenly due to the establishment of universities under the new system in 1949. (Technological education given by the universities under the former system was of an European type which provided advanced education to a select few.)



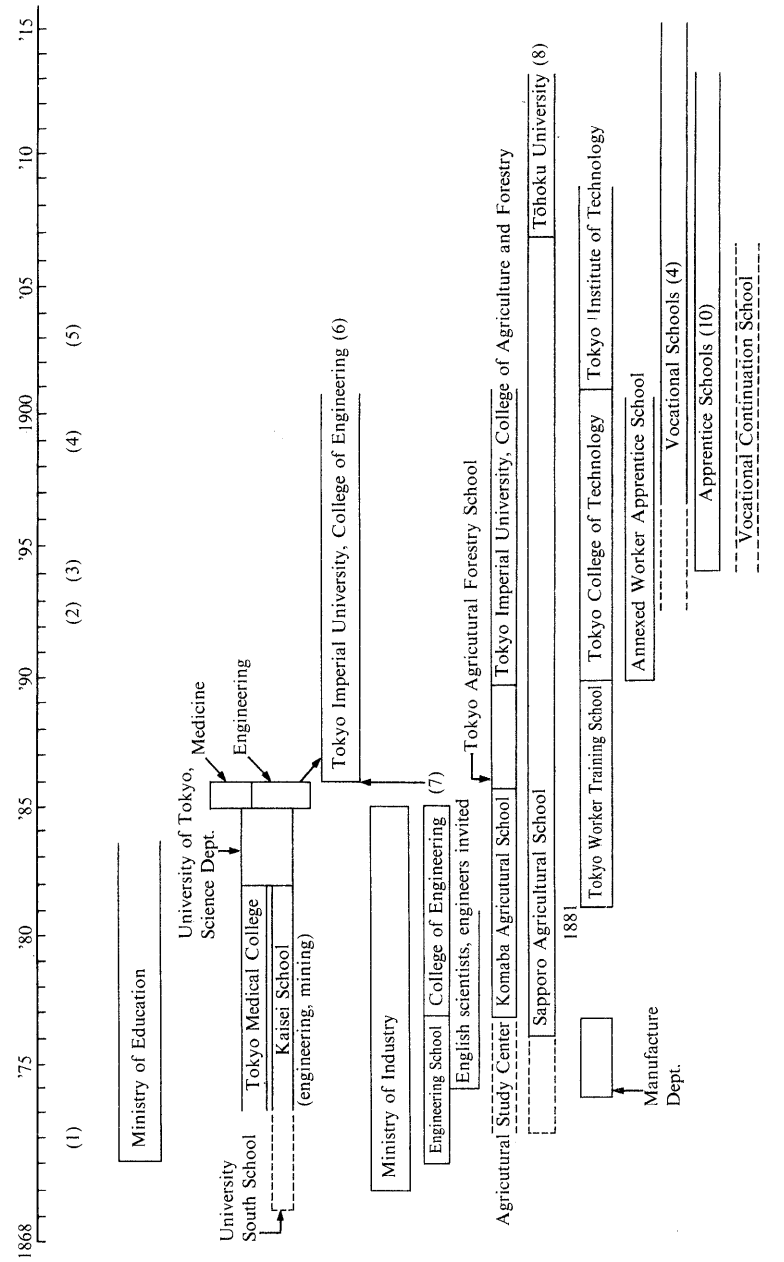


Fig. 13.4. Vocational Education, 1868-1915

Fig. 13.4 (continued)

Notes: (1) School system established

(2) 1893, Regulations for Vocational Continuation Schools

(3) 1894, Government Subsidy for Vocational Education Act; Regulations for Apprentice Schools; Regulations for Ordinary Agricultural Schools

(4) 1899, Vocational School Act; Revised Middle School Act; Girls' Higher School Act

(5) 1903, Special School Act

(6) Mechanics, civil engineering, mining, metallurgy, applied chemistry

(7) Transfer to Ministry of Education

(8) College of Agriculture until 1918

(9) Vocational schools: 7 technical, 9 agricultural, 11 commercial schools in the beginning; by 1912, there were 36 technical, 81 advanced and 164 ordinary agricultural schools, and 67 advanced and 32 ordinary commercial schools

(10) Apprentice schools: 9 in the beginning and 107 between 1912 and 1920

Sixty-nine new universities were founded at once and the number of departments and students in science and engineering increased greatly. This corresponded aptly to the period of a postwar technological innovation boom which had started in the latter half of the 1950s. At the same time, it provided the foundation by which to bridge the great technological gap created during World War II between Japan and the Western nations. It would have been very difficult to have attained a series of explosive developments seen from this period onwards in such new industries as shipbuilding, steel, petroleum, chemicals, domestic electrical appliances, and others without the scientific and technological manpower made available by the expansion of technological education.

Such developments in industrial technology were carried out through the introduction of technology from the United States and the European countries. Technology transfer from advanced countries contributed greatly to Japan's industrial development. Since the introduction of new universities, there has been the constant additional establishment of higher educational institutions for science and technology. In the difficulties of the so-called Sputnik shock faced by the United States, Japan was also hit by the era of the second science and technology boom. Based on a prediction that the industrial structure would become more advanced, a training plan for much needed manpower in science and technology was introduced as a significant policy.

## 2. The Adaptability of Technological Education

Japan's technological education succeeded in coping with new situations in a relatively short period of time. In addition to increasing the number of students in conventional specialized fields, measures were taken to create new departments, lectureships, and research offices. In the interim, new courses and curricula were successively established.

On the other hand, however, due to the incredible speed of technological innovation, there was criticism that the adaptation had been so hasty that it caused an excessive subdivision of the specialized fields. A great synthesis in the organization of university courses and departments was pursued at Osaka University, Hiroshima University, and others, and a university in accordance with a new vision, Tsukuba University, was founded. Each of these was equally epochal in its efforts at school education to cope with the era of technological innovation.

## 3. In-Service Technological Training

In a study of technical education and industrial development, the role played by in-service education and training is important. In-service

training in Japan's takeoff period has already been explained, but the role fulfilled by enterprises in the postwar technological innovation period was truly significant.

It can be said that persistent efforts made by enterprises in the form of continued education and retraining functioned decisively in raising the standards of Japan's industrial activities. When there is a radical fluctuation in specialized fields, university education is limited to four-year study with poor research facilities and limited research funds. What bridged the dichotomy between higher education and advanced technology was in-service education and training.

The above viewed the function of technical education in postwar industrial and economic development on the basis of the three points mentioned. Although positive aspects have been given thus far, there are of course negative aspects to be solved and moot points to be clarified in the future.

### III. Conclusion

Vocational education studied thus far is becoming a thing of the distant past and difficult to contemplate on the basis of Japan's contemporary education. Nevertheless, several decades ago it had a brilliant existence which helped to propel Japan's modernization. Both apprentice schools and vocational continuation schools functioned positively in proportion to the actual conditions of industrialization at that time.

Excluding some East Asian countries, vocational education in the contemporary Third World nations has just emerged. The countries that have endeavored to spread and expand primary and secondary education are now finally at the stage of making plans for "vocational education." The vocational education accomplished in Japan after repeated trial and error has been sufficiently discussed. However, to conclude, the correlation between education and industrialization in Japan is reviewed once again.

#### 1. The Improvement of Primary and Secondary Education

The most substantial achievement in Japanese education from the Meiji period onwards was the prevalency and development of mass education centering on compulsory education. The length of compulsory education grew steadily from four to six years and from six to nine years; the enrollment ratio reached nearly 100%. (The entrance ratio to high school was 94% in 1980.)

The educational cost per student equals that in the United States, and the educational level of the teachers shows that teachers who grad-

uated from a four-year university make up more than 40% of the teaching staff in elementary schools, more than 60% in junior high schools and nearly 90% in high schools.

In such an environment, the academic standards of the students are also high. Compared internationally, the scholastic ability of Japanese elementary and junior high school students is extremely high. According to an international educational survey carried out primarily by Unesco, Japanese students (participating in mathematics and science) ranked either the first or foremost among others in 1970. Such a high level of primary and secondary fundamental education was the basis that provided various sectors with important and superior manpower in the industrialization of Japan.

## 2. The Popularization of Higher Education and Its Problems

The society was transformed greatly in the postwar period due to the change in the industrial structure and the concentration of population in the urban areas. The expansion of higher education was particularly

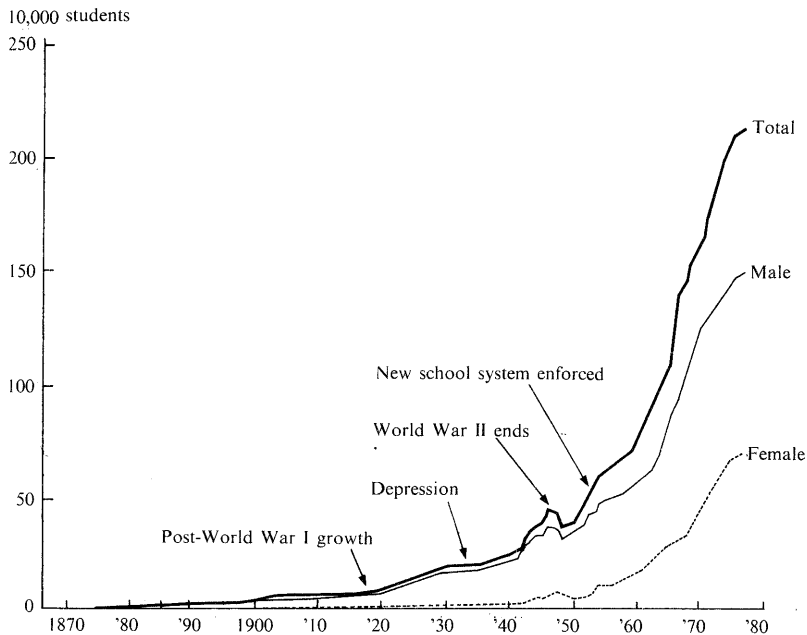


Fig. 13.5. Enrollment in Higher Educational Institutions, 1870–1980

Source: Hotari Kōji, “Kōgakureki shakai eno ikō” [A Shift to a Highly Educated Society] in Sōgō Kenyū Kaihatsu Kikō, ed., *Jiten Nippon no kadai* [A Cyclopedia on Japanese Tasks], Gakuyō shobō, 1978.

marked and there was a radical quantitative increase in the process of rapid economic growth. As can be clearly seen in Figure 13.5, the enrollment in higher educational institutions has been growing gradually since the Meiji period (increasing even during wartime), and the enrollment has expanded radically in the postwar period due to the development of the secondary and tertiary industries, educational reform, and the increased demand for university graduates. (The enrollment of 205,000 students in 1960 increased nearly threefold to 620,000 in 1977.) In recent years, 36 to 37% of the peer group enter higher education. (See Figures 13.6 and 13.7, Tables 13.2 and 13.3 for the postwar

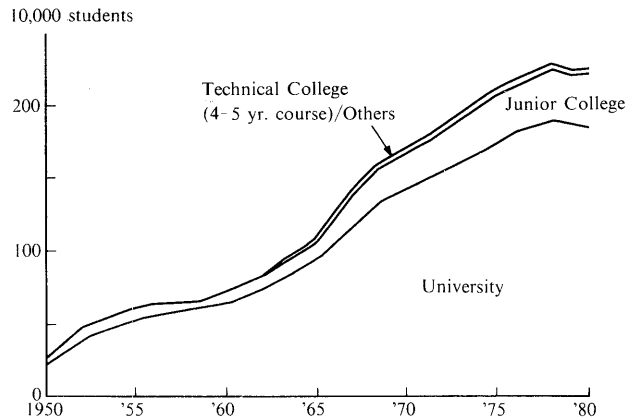


Fig. 13.6. Enrollment in Higher Educational Institutions, 1950-80  
 Source: Ministry Education ed., *Waga kuni no kyōiku sui jun, Shōwa 55 nendo* [Educational Standards in Japan, 1980] (1981), p. 30.

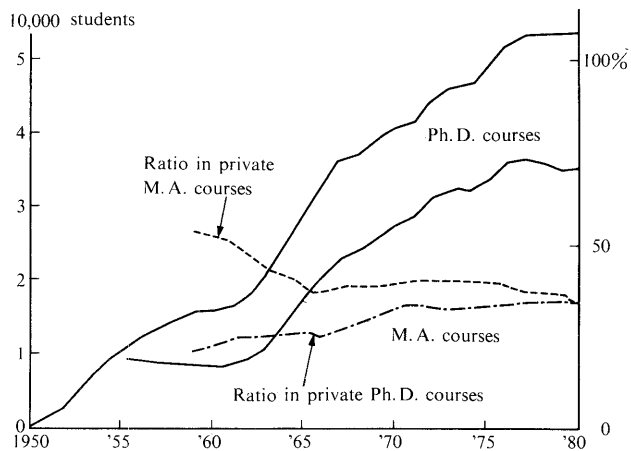


Fig. 13.7. Enrollment in Graduate School, 1950-80  
 Source: Same as Figure 13.6, p. 32.

Table 13.2. University and Junior College Enrollment by Subject Area, 1960-80  
University (Department)

Year	Total	Social							
		Humanities	Science	Science	Engineering	Agriculture	Hygiene	Education	Others
1960	601,464	77,888	257,979	16,206	92,572	28,040	35,633	63,169	29,977
1965	895,465	113,723	386,178	27,220	174,655	36,721	45,770	69,670	41,528
1970	1,344,358	170,907	562,162	42,071	283,674	49,853	66,457	92,619	76,615
1975	1,652,003	215,933	688,667	50,225	333,959	58,996	92,523	119,486	92,214
1980	1,741,496	239,990	704,736	54,576	337,762	59,558	111,862	137,137	95,875

## Junior College (Specialized Course)

Year	Total	Home					
		Humanities	Science	Engineering	Economics	Education	Others
1960	81,528	14,219	16,170	9,200	30,508	5,875	5,556
1965	145,458	27,666	24,409	14,887	56,759	13,074	8,663
1970	259,747	51,475	30,187	21,799	85,017	44,413	26,856
1975	348,922	73,645	37,915	23,335	97,369	78,007	38,651
1980	366,249	79,008	33,499	20,093	97,894	89,370	46,385

Source: Same as Fig. 13.6, appendix, p. 66.

Table 13.3. Graduate School Enrollment by Major, 1960-80

Section	Total	Social			Science	Engineering	Agriculture	Hygiene	
		Humanities	Science	Science				(of which medicine)	Others
1960	8,305	2,870	2,370	987	1,223	372	140	343	
1965	16,771	3,104	3,355	2,198	5,657	1,020	512	925	
1970	27,714	5,157	4,607	2,983	10,251	2,063	909	1,744	
M.A. Course	33,560	5,975	4,596	3,226	13,514	2,691	1,018	2,540	
1980	35,781	5,469	4,050	3,741	14,864	2,546	1,497	3,614	
1960	7,429	1,106	894	900	391	339	3,709	180	
1965	11,683	1,281	1,086	1,245	1,282	424	6,101	264	
1970	13,243	1,876	1,727	2,263	2,356	839	3,769	413	
Ph.D. Course	14,904	2,465	2,198	2,355	2,522	1,008	3,795	561	
1980	18,211	2,860	2,430	2,589	2,358	1,095	6,191	688	

Source: Same as Fig. 13.6.



growth and enrollment by department.) Nonetheless, many problems exist regarding higher education.

The first problem pertains to a structure which is reliant on private institutions. Nearly 80% of the total number of university students attend private universities. (In the United States, 25% of the total of 10 million students are private university students.)

The second problem is the diminutive scale of graduate schools. For students entering graduate schools at the age of 22 years, the enrollment ratio is 16.3% in the United States, 5% in the United Kingdom, 9.6% in France, and 13.2% in Germany, and only 1.3% in Japan. Upon reaching the age of 22 university graduates in Japan enter employment in government offices, trading companies, and other organizations, and there is only a handful who pursue studies at graduate schools. As far as graduate school education in advanced education is concerned, the scale is so diminutive that it can only be described as being at the developing stage.

Table 13.4. Enrollment in Science and Engineering Departments, 1950–83 (persons, %)

	Science Department	Engineering Department	Total (Percentage of all departments)
1950	5,902	29,459	35,361 (15.7)
1955	9,908	67,004	76,912 (14.7)
1960	16,206	92,572	108,778 (17.4)
1965	27,220	174,655	201,875 (21.5)
1970	42,071	283,674	325,745 (23.2)
1975	50,225	333,949	384,174 (22.1)
1981	55,033	334,009	389,042 (21.3)
1982	55,188	333,387	388,575 (21.3)
1983	56,991	339,596	396,587 (21.6)

Source: Formulated from Prime Minister's Office, *Nippon no tōkei, Shōwa 56 nenkan* [Statistics of Japan, 1981] and Ministry of Education, *Waga kuni no kyōiku suijun Shōwa 55 nendo*.

### 3. Characteristics of Postwar Technological Education

When a great gap existed between the scientific and technological standards of the United States and Europe and those of Japan, it can be said that the choice made to push advanced technical education in postwar Japan was appropriate as long as the strategy was to catch up with the West in the shortest time. As clearly shown in Table 13.4 and Figure 13.8 there was a remarkable growth in higher education for science and engineering in the postwar period and, in particular, there was an extremely sharp rise from the 1960s to the early 1970s.

At present, viewed on the basis of the number of scientists and engineers, Japan among the advanced industrial countries takes pride as having the third largest number following the United States and the Soviet Union. Furthermore, remarkable results of research development have been achieved in indices such as the number of theses and the number of patents. Nevertheless, graduate school education, as already stated, is weak. Graduate schools, which should play a central role in the training of high-quality engineers, strictly speaking, have been neglected for over thirty years in the postwar period. (It is a fact that M.A. and Ph.D. degree holders are politely shunned by enterprises.)

The greatest task set before Japanese education and industry internationally is the development of a creative technology. What is worthy of the name of creativity in the fields of invention and innovation blossoms when there is solid basic research.

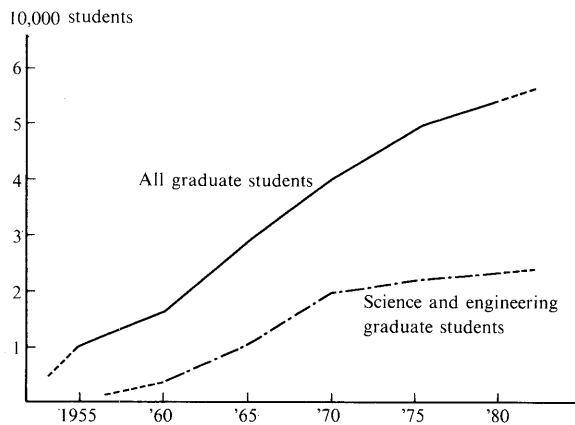


Fig. 13.8. Science and Engineering Graduates, 1955–80

Source: Same as Fig. 13.5.

Triggered by the dollar shock and the oil shock, industrial and economic circles in Japan have been implementing measures at great cost to improve their position to cope with the new circumstances. The extent of the self-renewal ability possessed by technological education in Japan acted as a light at the end of the tunnel which was followed by Japanese modernization and industry. For this purpose, there is an exigent need to study the education existent at the universities as well as the science and technological policies themselves.

#### 4. Miscellaneous Schools and Special Training Schools

Educational instruction provided outside formal school education offered by elementary schools, junior and senior high schools, and universities is called miscellaneous. The role played by miscellaneous schools in Japanese education is fairly significant.

Historically speaking, prior to the establishment and improvement of secondary level vocational education in the early stages of the industrialization of Japan, the training of midlevel technicians had been provided by such miscellaneous schools as worker schools and vocational continuation schools. Much of the education not offered by formal schools in Japan has been given, up to this day, by miscellaneous schools.

According to the 1975 revision of law, a part of the miscellaneous schools were reclassified as special training schools. (In the same year there were approximately eight thousand various schools.) Special

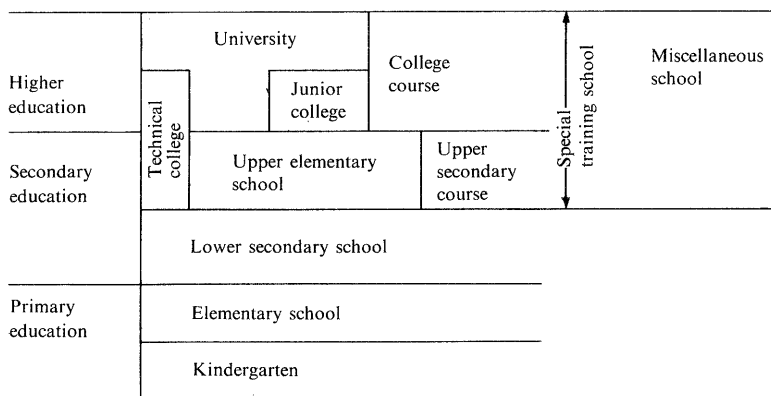


Fig. 13.9. Special Training Schools in Relation to the School System

Source: *Bun'ya betsu zenkoku senshū gakkō sōran, Shōwa 57 nemban* [A Complete List of Nationwide Special Training Schools by Field, 1982 ed.], Senshū Gakkō Kyōkai Shinkōkai, 1981, p. 14.

training schools were further divided into two groups, namely upper secondary courses and college courses (See Figure 13.9). The combined number of students enrolled in special training schools and miscellaneous schools has reached 1,150,000 students (Refer to Table 13.5). Although the enrollment period is for one to two years, the number of students is noteworthy. It should be noted that in 1975 the number of university students was 1,840,000 and the number of junior college students was 370,000 (See Table 13.2 and Figure 13.6).

It has been stipulated that the annual number of class periods at miscellaneous schools is more than 680 periods while that at special training schools is more than 800 periods. The education offered by these schools, as shown in the following list, is so truly diversified that it can clearly be seen that the gaps in industry and the occupational structure which cannot be filled sufficiently by formal vocational education are bridged in every field by these schools (See Tables 13.6 and 13.7). Thus the contribution made by miscellaneous and special

Table 13.5. Schools, Teachers, and Students in Special Training and Miscellaneous Schools

	Special Training Schools			Miscellaneous Schools		
	Schools	Teachers	Students	Schools	Teachers	Students
National	187	764	15,843	11	21	223
Public	146	1,328	20,628	155	864	13,084
Private	2,187	18,125	396,443	5,137	25,591	711,077
Total	2,520	20,217	432,914	5,303	26,476	724,384

Source: Same as Fig. 13.9, p. 21.

Table 13.6. Enrollment in Special Training Schools by Specialized Area, 1980

	Total	Industry	Medicine	Public Health	
Number of students	337,864	62,718	86,654	23,816	
Percentage	100.0	18.6	25.6	7.1	
	Home Management	Culture	Agri-culture	Education and Social Welfare	Commerce
Number of students	69,694	40,563	382	19,295	34,742
Percentage	20.6	12.0	0.1	5.7	10.3

Source: Same as Fig. 13.6, p. 37.

training schools to modernization and industrialization deserves special mention.

(1) Schools related to apparel and domestic science: apparel, Western dressmaking, Japanese dressmaking, knitting and handicrafts, domestic science, hat making, cooking.

(2) Schools related to medicine, hygienics, nutrition, education, and welfare: nursing, health, midwifery, clinical examinations, radioactive treatment, X-ray treatment, rehabilitation, dental hygienics, dental technician, acupuncture, osteopathy, acupuncture and moxibustion, judo reposition, nutrition, cooking, bakery, early childhood education, preschool education, social welfare.

(3) Schools related to industrial technology: engineering, architecture, drafting, surveying, welding, automobile, aviation, watches, electronics, electrical appliances, electronic calculators, television, wireless.

(4) Schools related to commercial vocations: abacus, accounting, typing, stenography, business, vocational language, secretary, hotel management, tourism, management, real estate.

(5) Schools related to art, culture, and education: art, design, fine arts, photography, drama, dance, tea ceremony and flower arrangement, calligraphy, doll making, languages, cultural education, labor, agriculture, law, religion, preparatory schools, schools for foreigners.

As seen above, miscellaneous schools denote a general category for a multitude of schools outside formal schools. A diversified educational content is organized for the young and for adults who are not enrolled in formal schools. Since they are subject to few legal restric-

Table 13.7. Enrollment in Miscellaneous Schools by Course

Year	1950	1960	1970	1975	1980
Total	486,609	1,239,621	1,352,686	1,205,318	724,384
Home management	65.3%	51.7%	39.6%	28.3%	13.2%
Medicine and public health	3.3	4.5	9.1	12.4	8.3
Commerce and business administration	7.4	14.0	11.2	12.0	14.7
Culture	9.8	11.3	12.1	10.8	7.8
Preparatory	7.3	6.7	9.6	15.5	31.2
Driving	0.4	5.1	8.4	8.8	16.9
Others	6.5	6.6	10.1	12.2	8.0

Note: Others: industry, education and social welfare, agriculture, etc.

Source: Same as Fig. 13.6, p. 39, appendix, p. 37.

tions regarding teaching staff, textbooks, and curricula, these are the schools which respond immediately to the practical and concrete demands of various groups in society.

Many "apprentice schools" and "vocational continuation schools" which comprise the theme of this book were started as miscellaneous schools. Historically speaking, institutions for vocational education for women in the Meiji period such as sewing, midwifery, nursing, and preschool teaching were all miscellaneous schools. Many "girls' schools" which comprise regular educational institutions were founded as miscellaneous schools.

Schools that offer courses in bookkeeping and the abacus for business activities, schools for medicine, pharmacology and dentistry, and schools for music, the arts, and physical education at first used to offer training for professionals and career personnel.

From around 1920 to 1926, miscellaneous schools began to change gradually and to develop remarkably primarily in the fields of industry, vocations for girls, and technology. On the basis of demands made by the industrial circles in the rapidly changing industrial structure of the time, many miscellaneous schools came to offer short and intensive courses for the training of useful low-level and mid-level technicians.

Miscellaneous schools at present have succeeded to much of the prewar tradition and complement the insufficient aspects of formal schools in society. Most of the miscellaneous schools which are engaged in technical and technological vocational education contribute to the development of Japan through education and training for the knowledge and skills required in every field of industry and vocation.

Even though miscellaneous schools (together with professional schools from 1975 onwards) are generally small-scaled educational institutions which offer short-term studies, they will henceforth continue to actively bridge many of the gaps in the industrialization of Japan.

## 5. Concluding Remarks

This chapter has examined the function of vocational education in the process of industrialization. Special attention was focused on the examination of apprentice schools and vocational continuation schools that comprised the types of vocational education first established.

In conclusion, the characteristics concerning vocational education are as follows:

(1) Social Environment for Vocational Education. As with general education, the social environment for vocational education in Japan offered many favorable conditions. Japanese society, homogeneous

in race and language, has maintained a literacy rate and intelligence levels of a high standard, which thus provided a rich environment for the development of vocational education.

(2) Flexible School System. The content of vocational education was diversified. In addition to schools such as those for agriculture, industry, commerce, fisheries, and merchant marine, there were many other kinds of schools which taught sewing, embroidery, artificial flower making, knitting, and home economics. Classes were held full-time during the day as well as part-time at night and on Sundays and holidays. The period of study also varied and ranged from six months to four years. The educational system was faced with rapid alterations and abolitions in response to the trends of industrialization. Furthermore, special classes were established to teach reading and writing to people who had not finished primary education.

(3) Facilitation of Non-Formal Education. Technology and skills, although required by industrialization, which formal schools were unable to offer were supplemented strongly by miscellaneous schools and in-company training. These two facilities, in lieu of formal education which tended to be theoretical, supported the actual scene of the industrialization in Japan.

(4) Enthusiastic Teachers and Diligent Students. Success in education is determined by the degree of tension existent between teacher and student, and in the case of vocational education in Japan, there was an air of seriousness between faculty (teachers and artisan instructors) and the students. Even though vocational education was regarded as inferior to regular education, while the teachers were eager to introduce new technology, students were also intent on absorbing it.

(5) Positive Educational Policy. Governmental policies regarding education were positive in the Meiji period as well as at times when the financial power was weak. The Government Subsidy on Vocational Education Act epitomized this attitude as the government made its investment for the implementation of education prior to any necessity felt by the industrial circles.

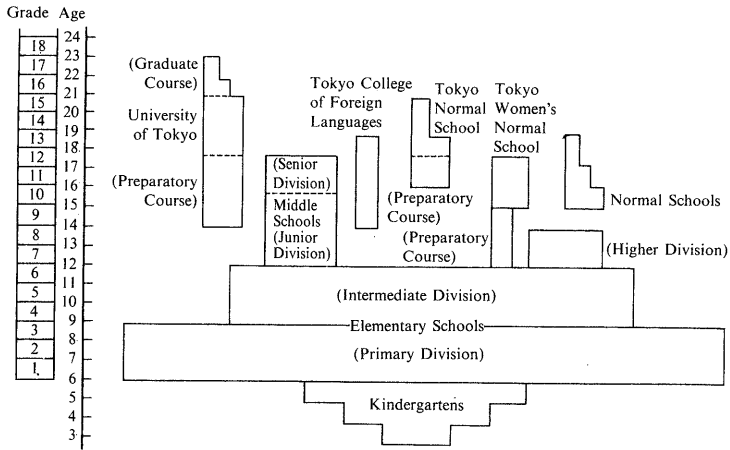
The enthusiasm of the government in education can be seen by the fact that in order to secure superior personnel as school principals the government set aside the equivalent salary given to prefectural governors, and competent new persons who had returned from abroad were actively used for early translation of textbooks. Both the state and the people made a joint endeavor to actualize vocational education and subsequently could pave the way to support modernization and industrialization.

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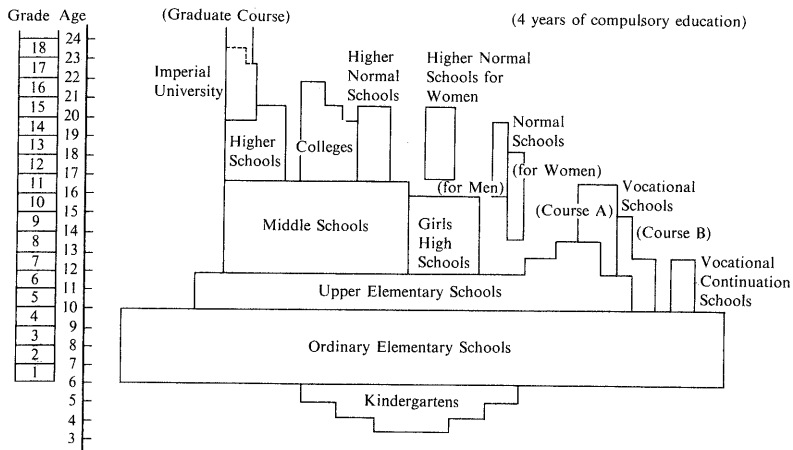
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1881



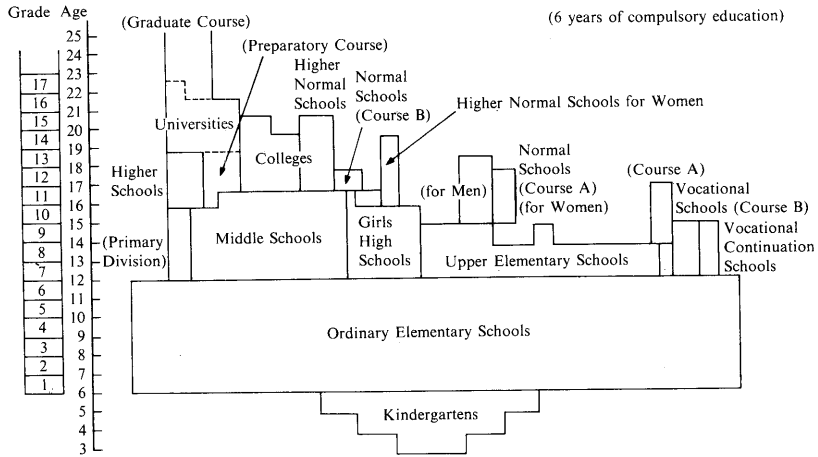
1900



Appendix: Historical Review of the Japanese School System  
Source: Same as Fig. 13.1.

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**1919**



**1962**

