Higher Education 18: 117–136 (1989)

The development of higher education in Taiwan

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Abstract. Taiwan had been ruled by Japan for fifty-one years before the end of World War II. The island's higher education was established during that period, mainly to support Japan's policies of colonization and expansion. When Taiwan was restored to China in 1945, the Japanese system of education was replaced by that of modern China, which followed the American prototype after 1922. American impact on the island's higher education has been substantial since then. However, there are some unique features in Taiwan's higher education. Centralized administration and college entrance examinations are two examples.

The purpose of this article is to examine foreign influence on the development of higher education in Taiwan. The first part discusses the establishment and shaping of higher education in Taiwan under Japanese rule. The second part examines the reform and development of the island's higher education after World War II. The process of transition from the colonial system to the Chinese system before 1949 is first explored. Then, the development of higher education after 1949 is discussed, under the headings of institutional type, entrance examinations, curriculum, study abroad, and so forth. The foreign impact upon the current system and the unique features of this system is presented in the final part of the paper.

Higher education during the Japanese occupation period (1895–1945)

In imperial China, higher learning was offered in the capital, while local regions provided only elementary and secondary education. Although in the last years of the Ching Dynasty, Western-style universities were founded in several cities, there was no institution of higher education in Taiwan before it was ceded to Japan. Therefore in tracing the development of higher education on this island, we must start from the Japanese occupation period.

In the Japanese occupation period, a Western-style system of education was established in Taiwan. Although the colonial government in Taiwan adopted a policy of gradual assimilation, and instruction at each level was in Japanese, ethnic discrimination and separation existed in education for a long time. In the years prior to 1919, the so-called "experimental period" in education, Japanese authorities did not establish a complete system of education in Taiwan.[1] The main educational institutions were common schools (elementary

schools), which were set up in order to replace *shu-fang*, the traditional Chinese private schools. There were very few post-primary institutions. Of them only a five-year medical school can be classified as an institution of higher learning.

In the early days of Japanese rule, epidemic diseases were prevalent in Taiwan. The traditional Chinese herb doctors, lacking knowledge in Western medicine, were not able to provide the necessary treatment. At the same time, Japanese doctors trained in Western medical science were insufficient in number. In view of the above facts, the colonial government established a medical training center attached to Taihoku Hospital. Two years later, the center was converted into a medical school for training Taiwanese doctors of Western medicine so as to replace Chinese herb doctors gradually.[2] Although the school encountered problems with the recruitement of students in the beginning, access to it soon became highly competitive. (Less than 10 percent of the applicants were admitted.) There were three reasons for this: first, the medical school was one of only two schools of the highest level in Taiwan which Taiwanese students might attend; second, the colonial government tried very hard to encourage Taiwanese graduates of common schools with outstanding records to take the school's entrance examination; third, physicians usually earned a high income. Consequently, the Taiwanese elite competed for the profession of medicine. Such a trend still prevails today.[3]

Since neither the level of the students it admitted nor the period of study was equivalent to that of the medical schools in Japan, the academic standard of this medical school was lower than its counterparts in the ruling country. In 1918, a one-year Department of Tropical Medicine and a three-year Department of Research were set up, admitting the school's own graduates. Soon a four-year specialized Department of Medicine was established, admitting graduates of Japanese middle schools. As a result, the medical school became a true institution of higher learning. In the meanwhile, since the usual practice of admitting only Taiwanese students was given up by the medical school, Japanese students choosing to be doctors could pursue studies in Taiwan.[4]

In 1919, an Education Rescript was promulgated in order to fulfill the policy of assimilation, answer the call of Taiwanese for educational reform, and meet the demands of the Island's economy for raising the level of general and technical education.[5] As shown in Figure 1, the institutions of higher education included a six-year agriculture and forestry college, a six-year commercial college, an eight-year medical college, and Taihoku Commercial College (for Japanese students only). Since these colleges were equivalent to post-primary vocational schools in Japan, and the level of the medical college was also lower than its Japanese counterpart, it was obvious that Taiwanese were discriminated against by the Japanese colonial rulers.[6] It was pointed out that the aim of this system, which emphasized secondary vocational education, was to

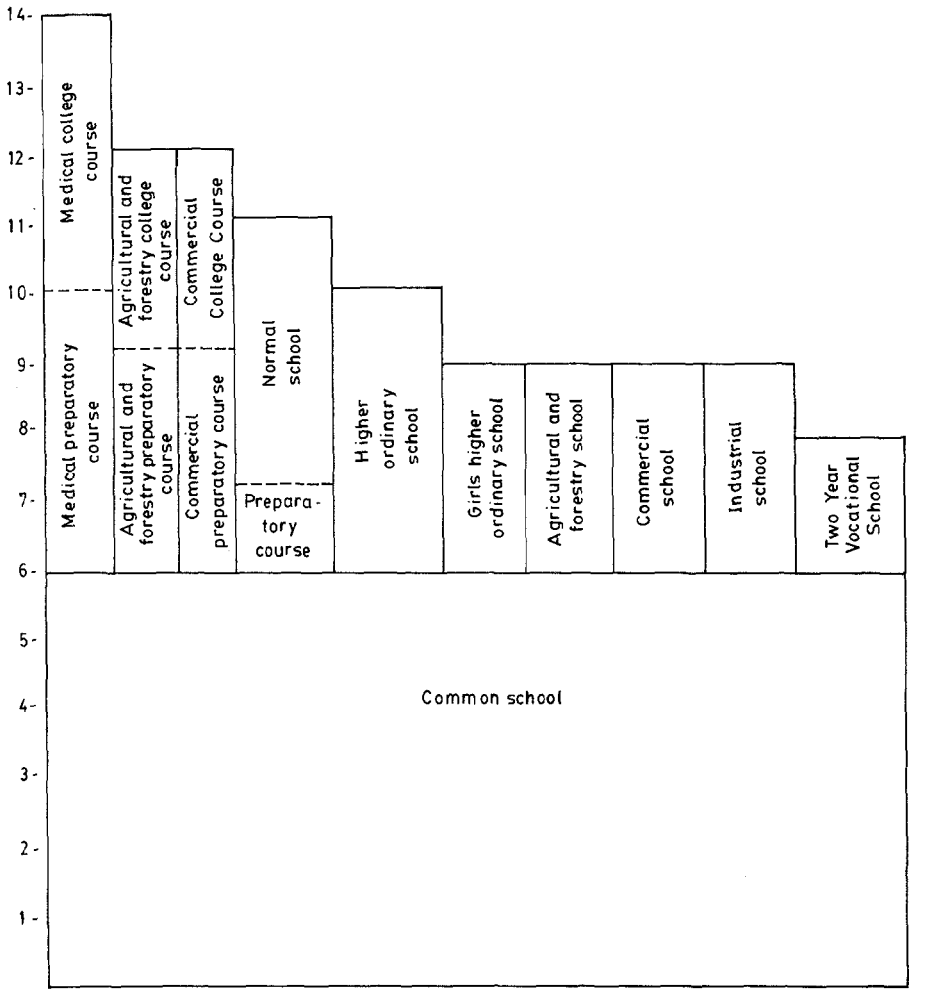

Fig. 1. School system as outlined by the 1919 rescript

Source: E. Patricia Tsurumi, Japanese Colonial Education in Taiwan, 1895-1945, (Cambridge, Massachusettes: Harvard University Press, 1977), p. 85.

"integrate Taiwanese into the colonial economy's rapidly growing industrial and commercial sectors" so as to decrease the need for recruiting skilled workers from Japan.[7]

The educational system designed by the 1919 Rescript did not satisfy Taiwanese demands for education. Even some Japanese considered the system inadequate and criticized it. Three years later, in 1922, a new rescript was promulgated, declaring that ethnic descrimination and separation were to be removed for the advancement of "integrated schooling" from secondary level up (except for normal schools). Later a number of post-primary institutions

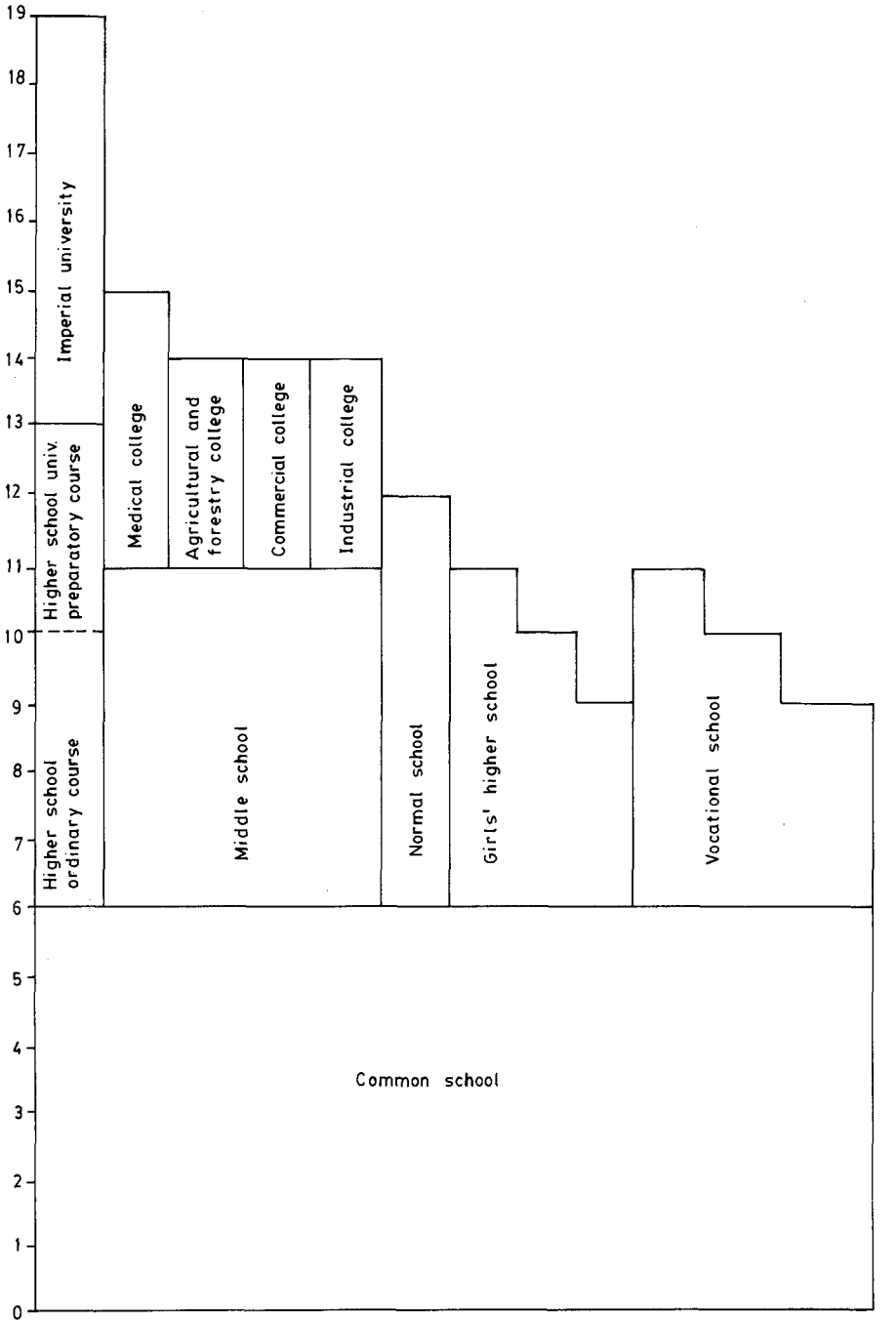

Fig. 2. School system as outlined by the 1922 rescript

Source: Taiwan Kyoiku Kai, ed., Taiwan Kyoiku Enkaku Shi.

were set up based on the model of Japanese institutions. The educational system outlined by the 1922 Rescript is shown in Figure 2. The institutions of higher education founded after the integration rescript included: Taihoku Higher School, the higher course of which was for university preparation; Taihoku Imperial University, converted from a two-faculty university in 1928 into a comprehensive one in 1943; and a few college admitting middle school graduates with a study period of three to four years, such as: Taihoku Medical College, Taichu Agriculture and Forestry College, Tainan Commercial College, Taihoku Commercial College, Tainan Industrial College, and Private Taihoku Girl's College.

In reality the places offered by these institutions were largely occupied by Japanese students (see Tables 1 and 2). Taiwanese did not enjoy equal educational opportunities. Even Japanese public opinion mentioned this fact and concluded that the so-called "assimilation" actually decreased the opportunities for Taiwanese students to enter institutions of higher education in their homeland.[8] Taiwanese, of course, kept on criticizing this aspect of educational inequality.

Table 1. Number of Taihoku Imperial University graduates till 1943 by faculty and ethnic group

Ethnic group	Faculty			
	Literature & Politics	Science & Agriculture	Medicine	Total
Taiwanese	45 (14%)	37 (11%)	79 (45%)	161 (19%)
Japanese	277 (86%)	303 (89%)	97 (55%)	677 (81%)
Total	322 (100%)	340 (100%)	176 (100%)	838 (100%)

Source: Wu Wen-hsing, A Study of the Taiwanese Elite under Japanese Rule (Ph.D. dissertation, National Taiwan Normal University, 1986), p. 104.

Table 2. Number of college graduates till 1942 by institution and ethnic group

Ethnic group	Institution				
	Agr. & Forestry college	Commercial college	Industrial college	Medical college	Total
Taiwanese	99 (12%)	425 (21%)	162 (21%)	1661 (74%)	2347 (40%)
Japanese	716 (88%)	1607 (79%)	610 (79%)	598 (26%)	3531 (60%)
Total	815 (100%)	2023 (100%)	772 (100%)	2259 (100%)	5878 (100%)

Source: Wu Wen-hsing, A Study of the Taiwanese Elite under Japanese Rule (Ph.D. dissertation, National Taiwan Normal University, 1986), pp. 101, 105.

As shown in Tables 1 and 2, the number of Japanese graduates was much larger than the Taiwanese counterpart except in the field of medicine. It was obvious that the so-called "integrated schooling" was only lip service since 80 percent of the educational opportunities offered by Taiwan's higher learning institutions, except Medical College and Faculty of Medicine, Taihoku Imperial University, were taken by Japanese students. In the whole population of the islanders, the number of Taiwanese college graduates was very small. It was not surprising that many Taiwanese went to Japan to study. (The number of Taiwanese receiving higher learning in Japan amounted to 60,000 before the end of World War II.) Japanese institutions' admittance of Taiwanese students somewhat ameliorated the inadequacy of higher education on the island.[9]

The institutions of higher ameliorated learning in Taiwan established after 1922 were comparable to those in Japan. However, there were some distinguishing features in these institutions. This was because the institutions were mainly founded to serve special purposes. For example, the Medical College focused on the investigation, study, and prevention of tropical diseases. Its teaching faculty involved many distinguished Japanese scholars of medicine. Attracted by the abundance of research materials in Taiwan, they were involved in the study of tropical diseases, such as epidemics, parasites, and so forth. Their efforts finally made the college a research center of tropical medicine. Many of its graduates turned out to be outstanding scholars in that field.[10] Commercial colleges were set up in order to support the expansion of Japanese economic forces in Taiwan, south China, and the South Pacific regions. Therefore, these colleges offered the subject of second language, such as Chinese and Malay, and of area studies on the above regions, in addition to ordinary courses.[11] Taiwan Industrial College was established to meet the demands for developing Taiwan's industry. The three departments it created initially, Mechanics, Electrical Engineering, and Applied Chemistry, were closely related to the needs of Taiwan's industry.[12] Although the level of these colleges was lower than that of universities, journals were published periodically, and a thesis was required for graduation.

The founding of Taihoku Imperial University was significantly due to Japan's ambition for expanding southward. Since Taiwan was considered a good place for conducting area studies on south China and the South Pacific, the university was originally made a research center for such studies. Many distinguished scholars were recruited to the university. The ratio of teachers to students was as high as 3 to 5. More than 100 chairs were created in the university's five faculties with graduate studies offered by each faculty. The total number of volumes in the library amounted to nearly 500,000. In addition, there were three research institutions affiliated with the university. The university usually received government sponsorship and funding for its research.[13] Its research findings were often used by the decision-makers in the

colonial government or in Japan, and have been important references for studies on modern Taiwan, south China, and the South Pacific. In short, the most important function of higher education institutions in Taiwan during the Japanese occupation period was to provide research material or high-level manpower needed for Japan's colonial policy, rather than to raise the quality of the people ruled.

Higher education after World War II (1945 to the present)

At the end of World War II, Taiwan was restored to China. The restoration meant not only that the territorial sovereignty of Taiwan was given back to China, but that Chinese culture was resumed on the island. Since the Republic of China had its own longstanding educational policies and systems, the reformation of education in Taiwan, after its restoration to China, is distinct from that in new countries just proclaiming independence. For better understanding of higher education in Taiwan after 1945, a brief review is made as follows on the rise of the educational system in modern China.

In the mid-nineteeth century, after being forced to open the country to international contacts by Western powers, the Ching court decided to initiate reforms by introducing Western institutions and ideas. Establishing Western style schools was deemed a necessary step to achieve this goal. In the beginning, the Japanese system of education, which was modeled on that of the European countries, was adopted. Later, in the 1922 educational reform of the Republic, it was replaced by the American prototype.[14] Up to 1949, American influence upon each level of education in the Chinese mainland had been substantial. At the tertiary level, the influence was shown in such aspects as institutional organization, curriculum, graduation requirement, degree structure, and the like. With this short description of Chinese education as a background, we now discus the development of higher education in Taiwan after World War II, which can further be divided into two stages.

The period immediately after restoration: 1945 - 1949

After Taiwan was restored, people on the island began to have full access to the opportunities of education, as provided by the Chinese constitution. In the meanwhile, all the tertiary institutions were reformed according to the model of modern Chinese colleges and universities, which was largely based on the American prototype. The tertiary institutions existing on the island prior to 1945 included one university, one higher school, and four colleges (equivalent to junior colleges today). Immediately after Taiwan was restored to China,

these institutions, except for the one which was disbanded, were renamed and reorganized based on the model adopted on the Chinese mainland. Later the higher school was transformed into a teachers college, and the three colleges were upgraded to university level. In addition to the changes in existing institutions, three new junior colleges were founded before the Nationalist government was relocated on the island.[15]

The reform of the existing institutions was enforced step by step. For example, in November 1945, Taihoku Imperial University was renamed National Taiwan University. One of its five faculties, Literature and Politics, was divided into two, and the term "faculty" was substituted by "college", which was used in the Chinese educational system. As a result, the university consisted of six colleges (Arts, Law, Science, Medicine, Agriculture, and Engineering). Many Japanese professors were asked to stay and they taught at the university. It was not until August 1946 that the university was reorganized based on the model of Chinese Universities. Its chair system was replaced by the department. Students took required courses and electives offered by their department, and credits were counted for each course. A study period of 4 years was required for graduation instead of 3 to 6 years as in the Japanese system. In order to retain the virtues of the chair system, a number of institutes were set up in each department. Each institute was headed by a full professor, with a number of junior faculty members working as research associates. In the Department of History, for instance, there were 6 institutes (Sociology, Ethnology, South Pacific History, Chinese History, Japanese History, and European History). The total number of institutes within the University's 24 departments (College of Medicine not included) was 84.[16] The research task of each chair was thus undertaken by the institute. On the other hand, Japanese professors were replaced by Chinese professors gradually so that the research and teaching activities of the university might be continued. In the beginning of 1947, about 20 percent of the university's faculty members (both full- time and part-time) were Japanese.[17] At the end of that year, Japanese professors still constituted 8 percent of the faculty members.[18]

There were some problems with the instructional language at that time. Since Taiwanese did not speak Mandarin, it was difficult for them to understand the lectures of the Chinese professors. To overcome this difficulty, Taiwanese freshmen were required to spend several hours per week learning Mandarin and Chinese Literature. Some of them continued to take Mandarin courses in the second year.

In sum, the process of reform during this short period was gradual and smooth. Most of the institutions existing prior to 1945, after being renamed and reorganized, continued to enroll students. Because of the superior research conditions established during the Japanese occupation period, these institutions have continued to enjoy high prestige in Taiwan.

The period following the relocation of the Chinese government in Taiwan: 1950 to the present

In the winter of 1949, when the Chinese communists occupied the whole mainland, the Nationalist government was forced to move to Taiwan. This formerly remote island suddenly became the seat of the central government of the Republic of China. Taiwan began to develop rapidly. At the same time, Chinese educational policy was enforced on the island more thoroughly than in the previous period. Japanese influence thus diminished further.

Economy and education

The success of Taiwan's economic policy is well known. A peaceful land reform, first enforced on the island in the Spring of 1949, successfully led to prosperity in the rural regions. As advances were made in agriculture, the government focused efforts on the development of industry. The first 4-Year Economic Construction Plan began in 1953.[19] It was not until 1963 that Taiwan shifted from an agricultural economy to an economy with equal emphasis on agriculture and industry.[20] The living standards of the people on the island were significantly raised through economic prosperity.

Education is closely related to Taiwan's widely reported economic growth. Popularizing education at elementary and lower- secondary level was an important government policy of the two decades after 1949. Since the early 1960's efforts have been made to expand education at the upper-secondary level, especially vocational and technical education, in order to meat the demands of economic development.

In addition to economic prosperity, the widespread enthusiasm for schooling also accounts for the rapid growth of education in Taiwan during the past four decades. There is an old Chinese saying "The pursuit of knowledge is superior to all the other occupations." Consequently, the Chinese people usually crave for more education as long as their basic needs for living are satisfied.

Expansion

Along with the relocation of the government, many anti-communist mainlanders, including college professors and students, arrived on the island. The number of college professors and students in Taiwan thus increased rapidly. In addition, some equipment, books, and other college facilities from mainland China were turned over to local colleges and universities. The quality

of higher education in Taiwan thus improved significantly within a short period due to the influx of these people and assets, especially in the fields of humanities and social sciences, which were very weak in the Japanese occupation period.[21]

Higher education expanded most rapidly in the 1960's. This was partly due to the growth at the secondary level. In addition, many five-year junior colleges were set up in the decade in order to cultivate medium-level manpower needed by industry and business. As shown in Tables 3 and 4, the number of tertiary institutions in Taiwan increased 15-times (from 7 in 1950 to 105 in 1986), while student enrollment increased 52-times (from 6,665 in 1950 to 345,736 in 1986).[22] Table 5 indicates that the percentage of the relevant age cohort (18–24 years old) going on to postsecondary education increased from 2.2 in 1957 to 14.2 in 1986. Education at the graduate level developed quickly after 1970. The ratio of graduate students to the number of students at

Table 3. Number of tertiairy institutions

Year	Type of institutions		
	Colleges and universities	Junior colleges	Total
1950	4	3	7
1960	15	12	27
1970	22	70	92
1980	26	77	103
1986	28	77	105

Source: Ministry of Eduication, Educational Statistics of the ROC (Taipei, 1987), pp. 2-5.

Table 4. Enrollment at tertiary institutions

Year	Type of institutions		
	Colleges and universities	Junior colleges*	Total
1950	5,379	1,286	6,665
1960	27,172	7,888	35,060
1970	95,145	55,301	150,446
1980	159,394	105,246	264,640
1986	198,166	147,570	345,736

* Students of Grades 1, 2, and 3 at 5-year junior colleges are excluded.
Source: Ministry of Eduication, Educational Statistics of the ROC (Taipei, 1987), pp. 18-21.

four-year institutions increased from 0.09 percent in 1950 to 6.78 percent in 1986 (see Table 6).

Types of institutions

The 105 institutions of higher learning presently existing in Taiwan can be divided into two categories: (1) colleges and universities, and (2) junior colleges. The colleges and universities offer four-year undergraduate programs leading to a bachelor's degree. Most of them also offer Master's programs and some doctoral. The second category consists of three types of junior colleges: the two-year junior college admits vocational high school graduates; the three-year junior colleges admits academic high school graduates; and the five-year junior college admits junior high school graduates. A diploma, not a degree, is awarded upon graduation at any junior college. The status of the above institutions in the educational system is shown in Figure 3.

Table 5. Proportion of higher-education students in total 18- to 24-year-old population (unit = %)

	Sex		
Year	Male	Female	Total
1950	NA	NA	NA
1960	4.9	1.3	3.1
1970	10.2	6.4	8.3
1980	11.9	9.1	10.5
1986	15.0	13.3	14.2

Source: Directorate-general of Budget, Accounting and Statistics, Executive Yuan, Statistical Yearbook of the ROC (Taipei, 1987), p. 249.

Table 6. Ratio of graduate students to the enrollment of four-year institutions

Year	Number of graduate students (A)	Enrollment of 4-year institutions (B)	(A)/(B) %
1950	5	5,379	0.09
1960	473	27,172	1.61
1970	2,295	95,145	2.43
1980	6,303	159,394	3.95
1986	13,437	198,166	6.78

Source: Ministry of Eduication, Educational Statistics of the ROC (Taipei, 1987), pp. 18-21.

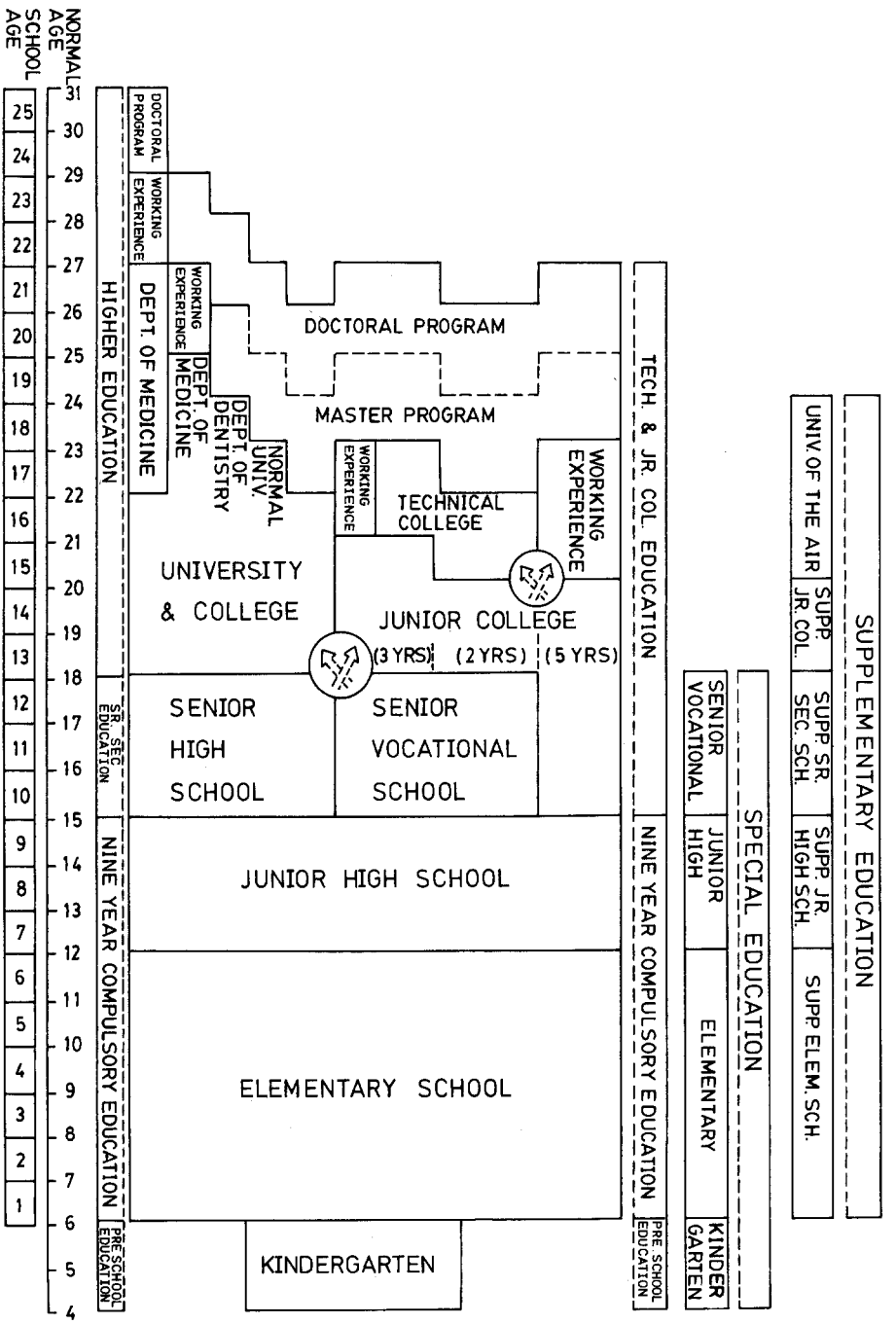

Fig. 3. Current educational system in Taiwan, ROC

Source: Ministry of Education: Educational Statistics of ROC (Taipei, 1987), p. i.

Among all the tertiary institutions, 7 were originally established in mainland China, then were reopened in Taiwan following 1949.[23] Three were formerly colleges or higher schools set up in Taiwan during the Japanese occupation period, but were reorganized and upgraded after 1945.[24] Only one institution, the National Taiwan University, was in existence prior to 1945. The others were opened after Taiwan was restored to China without any predecessors either in mainland China before 1949 or on the island prior to 1945.

In addition to the 105 traditional institutions, the University of the Air was opened in 1986, drawing upon the experience of the British and Japanese Open Universities. It aims to offer opportunities for higher education through ways other than face-to-face instruction. Due to its non-traditional style, the University is classified into the category of supplementary education (adult education), as shown in Figure 1.[25]

The establishment of this University presents a good example of foreign impact upon Taiwan's higher education in recent years. However, the people on Taiwan did revise this foreign model of education according to their own ideas. It was decided that a certain kind of entrance examination needed to be held as a means of screening. (The issue of college entrance examinations will be discussed in the following section.) It was also decided that only a certificate, not a degree, could be awarded to the graduates of this University, since there would be little contact between faculty and students, which would make the education poorer, compared to the traditional college education. In spite of all these restrictions, 20,000 students enrolled in this University in the first year right after its opening, a figure which exceeded the enrollment of any one traditional university in Taiwan at that time.[26] This fact probably indicates that the island's higher education system needs to be expanded further.

Entrance examinations

It is interesting to note that, although the current tertiary institutions in Taiwan are similar to their American counterparts, the admission policy of Taiwan's colleges is quite different from that of the institutions in America. The students are admitted to the tertiary institutions solely based on their scores on entrance examinations. There are a number of joint extrance examinations given at the tertiary level. Of them, the most competitive one is the Joint Entrance Examination for Colleges and Universities. It was first held in 1954, with around a hundred thousand applicants each year in the last decade. The admission rate is about 30 percent. There are also entrance examinations jointly held by different types of junior colleges. Although there has been prolonged argument over the value of it, the joint entrance examination is still in existence and would probably last for a certain period of time. There are

two major reasons for this: first, the examination provides fair competition and excludes any possibility of back door admissions; second, the examination jointly held by similar institutions avoids duplicated admissions.

Fields of study

Since it is the Ministry of Education that approves the establishment of each institution and decides the enrollment of each department, changes in the ratio of college students enrolled in different fields to the total enrollment usually reflect the direction of government policy. Table 7 shows that the ratio of humanities students increased considerably between 1950 and 1960, but decreased sharply after 1960. In 1986 only 9 percent of the total college students were in the field of humanities. The ratio of engineering students declined first, but increased substantially later. In 1986 it reached as high as 34 percent. The ratio of the social sciences students (mainly business and management) dropped slightly, following a period of rapid growth. In 1986, it was about 31 percent. The ratios of students in other fields either decreased steadily or fluctuated slightly. None of them exceeded 10 percent in 1986. The high proportion of students studying in the fields of engineering and business shows the fact that higher education in Taiwan has been geared to the island's economic development.

Table 7. Ratio of college students in different fields to total enrollement (unit: %)

Year	Field								
	Hmn.	Educ.	Art	Law	S. Sci.	N. Sci.	Engr.	Med.	Agri.
1950	7	3	1	3	24	7	30	17	7
1960	18	5	3	3	25	9	20	8	9
1970	12	6	3	2	35	7	20	9	6
1980	11	6	3	2	33	6	30	5	4
1986	9	5	2	2	31	6	34	8	3

Source: Ministry of Eduication, Educational Statistics of the ROC (Taipei, 1958, 1961, 1971, 1981, and 1987).

Curriculum

As mentioned earlier, after World War II the educational system in Taiwan was reorganized according to the Chinese model. There are three types of courses in Chinese colleges and universities: (1) general courses for all

departments, (2) required courses for individual departments, and (3) electives. The first two types of courses are stipulated by the Ministry of Education; only the electives are offered freely by each institution. After being relocated in Taiwan, the government of the Republic of China established its basic policy of preventing the permeation of Communism and preparing for the restoration of the Chinese mainland. College curriculum was then revised to conform to the above policy. In 1950, The Three Principles of the People (later titled The Doctrine of Dr. Sun Yat-Sen) was listed as one of the general courses in all the tertiary institutions. Four years later military training was restored as a college general course with no academic credit. These two courses, created because of the unique condition the country faced, are still required for all the college students.[27]

There are other general courses for college students including Chinese, English, the General History of China, the History of Contemporary China, Physical Education (with no credit), and one of the following alternatives: the Constitution of the Republic of China, International Relationships, Introduction to Philosophy, and Introduction to Law.[28]

College students in Taiwan have been required to take general courses since the higher education system was integrated with that in the Chinese mainland at the end of World War II. The purpose of the requirement is to cultivate all-round persons. However, it has achieved very little. In most institutions students are encouraged to take as many courses in their major fields as possible. As a result, college graduates turn out to be specialists with little knowledge outside their own fields. In view of this fact, in 1983, the Ministry of Education added a new requirement: students in the area of science, engineering, agriculture or medicine must take courses of 4 to 6 credits in the area of humanities, social sciences, or the arts; while students in the area of humanities, law, or business must take courses of 4 to 6 credits in the area of natural science, applied science, or the arts.[29] It was pointed out that such a revision in college curriculum was affected by the renewed interest in general education on American campuses, aroused by the 1978 report on core curriculum issued by Harvard University.[30] However, whether the general education in Taiwan's colleges and universities can be improved by this new requirement or not is still unknown.

In addition to general courses, which must be taken by all the students regardless of their major, the required courses for each department are also stipulated by the Ministry of Education. They are subject to revision every four to six years in order to keep abreast of the world's academic current and to meet the needs of the changing society. In fact the designing and revising of departmental courses are based on the course arrangement in Western universities, especially American institutions, except for the Department of Chinese Literature. The instructional content is largely adopted from Western

textbooks. Most departments in the fields of natural science and engineering use textbooks mainly in English while the classroom instruction is in Chinese.

Evaluation of institutions

In view of the rapid growth in higher education, the Ministry of Education initiated an evaluation of colleges and universities in 1975 as a means of quality control. The idea of the evaluation project came from the accreditation of tertiary institutions in the United States. However, the former aims at analyzing the virtues and defects of each institution's faculty, curriculum, library holdings, and equipment, with no intention to set up a criterion and grant official recognition to those institutions that meet the criterion, as does the American accreditation. This is probably because the founding of each institution, either public or private, must be approved in advance by the Ministry of Education. In other words, the institutions receive governmental recognition once they are set up.

It was found that, in spite of some deficiencies, the evaluation project did help to raise the quality of the island's tertiary institutions.[31] As a result, the Ministry of Education decided to make the project a regular practice, with some revisions made on the evaluation techniques.

Study abroad

As mentioned earlier, during the Japanese occupation period, the opportunities for Taiwanese youth to receive higher education on the island were limited, and many Taiwanese chose to pursue higher learning in Japan. After World War II, students in Taiwan still wish to study abroad. Students normally go abroad after obtaining the bachelor's degree, and most prefer to study in the United States.

Between 1950 and 1980, of the 63,061 students who were approved to study abroad, only 7,240 returned. The brain drain was as high as 90 percent. However, it decreased to 80 percent between the years 1981 to 1986. It seems that Taiwan's brain drain is slowing down gradually. This could be explained by both the improvement in the domestic conditions of Taiwan and the decrease in the demands for high-level manpower in foreign countries.[32] In addition, the tightening restriction on immigration, especially in the United States, could be another reason. In 1986, 1,583 foreign-educated students returned to Taiwan. Among them 466 were employed by academic institutions (about 30 percent) and others worked for business or the government.

The returned students, with their various advanced degrees, bring back ideas acquired from living abroad. Since Chinese people usually think highly of the returned students, many of them do have the opportunities to exert their influence. For example, in the Ministry of Education, 11 of its 12 Ministers since 1950 have studied abroad (9 were educated in the United States, and 2 in West Germany).[33] The educational policies concerning the University of the Air, the evaluation of higher education, and the general education requirement clearly reflect the Western impact.

At the institutional level, returned students are also influential. Many of them serve as college professors. In 1986, of all the faculty members at the four-year institutions, 28 percent were students returned from the U.S., 5 percent from Europe, and 8 percent from other Asian countries.[34] The ways of teaching and research of the returned scholars are largely based on what they have learned or observed in the foreign countries, especially the U.S.

Conclusion

Historically, the development of higher education in Taiwan can be divided into two periods: (1) the period of Japanese occupation: 1895–1945, and (2) the period after World War II: 1945 to the present.

In Imperial China, higher education was only offered in the capital of the nation, while schools outside the capital were of elementary or secondary level. Toward the end of the nineteeth century, the Ching government began to adopt a Western system of education but no institution of higher education was set up in Taiwan at that time.

After Taiwan was ceded to Japan in 1895, the Japanese system of education was implemented on the island, mainly to support the policies of colonization and expansion. Due to this special purpose, the pattern of higher education in Taiwan was unique, as shown in the limited number of tertiary institutions and their research orientation. In addition, the opportunities of higher learning on the island were insufficient for Taiwanese, since most of the places were taken by the Japanese students.

After World War II Taiwan was restored to China. All but one tertiary institutions on the island were renamed and reorganized. In the first few years following 1945, higher education in Taiwan grew modestly. Only three junior colleges were founded, and the fields of medicine, agriculture, and engineering continued to be dominant in higher education institutions as they were in the pre-War years.

In the winter of 1949, Taiwan became the seat of the Nationalist government. Reconstruction there thus began to speed up. Education at each level has expanded considerably since then. In 1986 the total number of higher

education students exceeded 345,000, a figure almost inconceivable four decades ago.

Examining the development of higher education on the island, one can easily find foreign impact, mainly Japanese and American. Taiwan had been ruled by Japan for almost two generations before the end of World War II. It is undeniable that the establishment of tertiary institutions in that period laid the foundation for the development of the island's higher education's later stages. However, the Japanese impact on the current educational system is unsubstantial, since it was weakened intentionally by the government of the Republic of China after 1949. Nevertheless, we can still find some Japanese influence in Taiwan's higher education. First, superior Taiwanese high school graduates still compete for admission to medical colleges, and medicine continues to be a leading field in Taiwan's higher education. Second, the development in the fields of agriculture and engineering after 1945 is due much to the stress on these fields by the tertiary institutions during the colonial period. Third, the research findings regarding south China and the South Pacific acquired in the Japanese occupation period are still valued by academia.

As soon as Taiwan was restored to China, the Japanese system of education in Taiwan was replaced by that of modern China, which followed the American model after 1922. With respect to higher education, elements such as institutional organization, study period, curriculum, degree structure and graduation requirement are similar to those found in American colleges. American influence can also be inferred by the fact that about 90 percent of the college graduates studying abroad have gone to the United States, and that many students returning from the said country play important roles in various fields related to higher education. The evaluation project on colleges and universities, and the new emphasis on general education are policies reflecting American impact.

However, the island's centralized administration in higher education is contrary to the American system of decentralization. The Ministry of Education in Taipei has the legitimate power in approving the establishment of higher learning institutions, and the addition or deletion of academic programs. It is also the Ministry of Education that determines the student number, tuition rate, and required courses in all the colleges and universities.

Such a centralized administration was established for the purpose of quality control in the late 1920's when Chinese higher education was in a state of chaos. Since centralization has long been a feature of Chinese political administration, governmental intervention in higher education seems tolerable to many people. The ideal of university autonomy has not been fully realized in the island's tertiary institutions. However, urged by many academics, the Ministry of Education is revising the Act of University. It is believed that the highly centralized system will be changed in the near future.

The college entrance examination is another feature in Taiwan's higher education. As there are far more applicants than the places offered by the island's colleges and universities, competition for admission to these institutions is keen. Therefore, the way that colleges select their students usually brings public attention. Since the examination assures fair competition and staves off irregularities, it is considered the most credible approach to judge one's qualification for college admission. Although the examination distorts education at the secondary level, no dramatic change will be made in it in the foreseeable future.

Higher education in Taiwan has grown considerably in the past four decades. In 1986, 14.2 percent of the total 18 to 24-years- old population attend postsecondary education institutions. Applying Martin Trow's concept, Taiwan is progressing toward mass higher education. However, the competition for admission to universities is keen, and it would be desirable to provide more opportunities for higher education to the young people.

Advanced studies at graduate level are also insufficient. As a result, many college graduates have gone abroad for further education. Since many of them chose to stay abroad after completing studies, the rate of brain drain was and still is high. In view of this fact, the government adopted a number of measures, such as development of graduate programs at local institutions, improvement of research facilities, increase of research funds, and so forth, in order to make Taiwan more attractive to highly-trained scholars. Such measures did have some effect, and the rate of brain drain has slowed down gradually in recent years. More efforts need to be done in this respect, so that more students trained by Taiwan's higher education would like to stay and contribute to their society.

Notes

1. Taiwan Kyoiku Kai, ed., *Taiwan Kyoiku Enkaku Shi* [A Record of the Development of Education in Taiwan] (Taihoku, 1939), p. 2.
2. Ibid., pp.917–918.
3. Wu Wen-hsing, "Jih chu shih chi tai wan she hui ling tao chieh tseng chih yian chiu" [A study of the Taiwanese Elite under Japanese Rule] (Ph. D. diss., National Taiwan Normal University, 1986), pp.96–98.
4. Taiwan Kyoiku Kai, ed., op. cit., pp.927–929.
5. Wu Wen-hsing, *Jih chu shih chi tai wan shih fan chiao yu chih yian chiu* [Japanese Colonial Normal Education in Taiwan, 1895–1945] (Institute of History, National Taiwan Normal University, 1983), pp.38–39.
6. Huang Cheng-tsung, "Tai wan chiao yu kai chao lun" [On Taiwan's Educational Reform], *Tai wan ching nian* [Taiwan's Youth] (August, 1921), p.5; and Wang Min-chuan, "Tai wan chiao yu wen teh kuan chien" [Views on the Problems of Education in Taiwan], *Tai wan ching nian* [Taiwan's Youth] (November, 1921), pp.32–33.

7. E. Patricia Tsurumi, *Japanese Colonial Education in Taiwan, 1895–1945*, (Cambridge, Massachusetts: Harvard University Press, 1977), p.88.
8. Yanaihara Tadao, *Yanaihara Tadao zenshu* [Collected Works of Yanaihara Tadao], vol. 2, (Tokyo, 1963), p.347.
9. Wu Wen-hsing, "Jih chu shih chi tai wan she hui ling tao chieh tseng chih yian chiu", pp.115.
10. Oda Toshiro, *Taiwan igaku gojunen* [A Fifty-year History of Medicine in Taiwan] (Tokyo, 1974), pp.69–70, 105–110, 116–120, 135–137.
11. Taiwan Kyoiku Kai, ed., op. cit., pp.942–947.
12. Ibid., p.951.
13. Taihoku Teikoku Daigaku, ed., *Taihoku Teikoku Daigaku Ichiran* [An outline of Taipei Imperial University] (Taihoku, 1943), pp.42–53; and E. Patricia Tsurumi, op. cit., p.123.
14. Wu Chen-tsou, *Chung kuo ta hsueh chiao yu fa chan shih* [The History of Development of University Education in China] (Taipei: San Ming Book Company, 1982), p.175.
15. Commission on the Compilation of the Almanac, Ministry of Education, *Ti ssu tsu chung hua min kuo chiao yu nian chian* [The Fourth Almanac of the Education in the Republic of China] (Taipei, Cheng Chung Book Company, 1974), p.656.
16. *Kuo li tai wan ta hsueh kai kuan* [Catalog of National Taiwan university] (Taipei, 1947), pp.3–4, 86–93.
17. Ibid., pp.100–101.
18. *Kuo li tai wan ta hsueh shao kan* [Periodical of National Taiwan University], 5, (December 1, 1947), p.2.
19. *Li fa yuan kung pao* [Communique of the Legislative Yuan], session 34, no.1 (October, 1964), p.144.
20. Ibid., p.146.
21. Wu Chen-tsou, op. cit. p.192.
22 When counting the number of higher education students, those who enroll in Grades 1, 2 and 3 at 5-year junior colleges are excluded in this paper since they are not really at the postsecondary level.
23. They are: National Chengchi University, National Tsinghua University, National Chiautung University, National Central University, National Chungshan University, Soochow University, and Fujen University.
24. They are: National Cheng Kung University, National Chungshin University, and National Taiwan Normal University.
25. Ministry of Education, *Educational Statistics of the Republic of China* (Taipei, 1987), p.x.
26. Ibid., pp.148–155, 199.
27. Department of Higher Education, Ministry of Education, *Ta hsueh pi shiu keh mu piao* [Required Courses for the College] (Taipei, 1983), p.3.
28. Ibid., p.1.
29. Ibid., p.2–3.
30. Kuo Wen-fan, *Jen wen chu yi te chiao yu hsin nian* [The Educational Beliefs of the Humanism] (Taipei, Wu Nan Publishing Co. Ltd., 1982), p.49.
31. Lu Mei-yuan, "Wuo kuo ta hsueh chiao yu ping chien chih yian chiu" [A Study on the Evaluation of Higher Education in the Republic of China] (Master thesis, National Taiwan Normal University, 1982), p.178.
32. Charles H. C. Kao, "Taiwan's Brain Drain," in James Hsiung and others, ed., *Contemporary Republic of China: Taiwan Experience 1950–1980* (New York: American Association for Chinese Studies, 1981), p.113.
33. For more information about Ministers of Education before 1978, please see Chang Wen-yi, "Chiao yu pu chang kao" [A Study on the Ministers of Education] *Chin Jih Chiao Yu* [Education Today], 34 (June, 1978), pp.94–106.
34. Data was obtained from Department of Higher Education, Ministry of Education, Republic of China.