

# Japanese System of Vocational Education and Training in Historical Comparison: Focusing on the Role of Schools and Companies in the Formation of Vocational Competencies

TERADA Moriki

This article aims to review the characteristics and specific issues of Japan regarding the roles and contributions of the initial vocational education and training (VET) system in the formation of vocational competency by comparing Japan with the earlier developed countries, based on previous domestic and international research. The formation of VET systems at the secondary school level is strongly influenced by the method chosen to organize apprenticeship systems in each country since the pre-modern era. Internationally, VET is structured into several systems, including the dual system, the apprenticeship-like system, the unregulated type based on further education, and a type centered on full-time school education. Japan saw the development of a system where basic competencies were learnt at school and specialized practical training at workplace. Since the 1970s, however, VET has gradually pushed upwards and been undertaken at the higher education level in colleges, polytechnic universities or colleges, or universities of applied sciences depending on national conditions. A comparison of early VET systems in Japan with those in other developed countries reveals a Japanese system characterized by the strong segmentation and the lack of a common framework for assessing the conformity of qualifications at the end of vocational education. Additionally, the relationship between school and company, both at the secondary and the higher education levels, is characterized by a lack of special partnerships. As debate over job-based employment and initiatives to guarantee the quality of education and training expand, the reform of such system is a challenge for the VET in the 21st century.

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## I. Introduction

This article aims to review Japan's characteristics and specific issues regarding the roles and contributions of the vocational education and training (VET) system in fostering vocational competencies through comparison between Japan and the earlier developed countries, based on previous domestic and international studies

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including Terada (1996; 2011).

### 1. Terms in vocational education and training

This article focuses on “initial vocational education and training” (UNESCO 2009) rather than further vocational training, etc. The term “VET” in this article is based on the following international definitions, regardless of whether it is discussed within the context of culture, school administration, commerce, industry, or labor administration. The definitions include: (1) “vocational education” (cited in the Smith-Hughes Act of 1917, also known as the Vocational Education Act of 1917 in the United States, as “such education shall be fit for useful employment; that such education shall be of less than college grade and shall be designed to meet the needs of persons over fourteen years of age who are preparing for a trade or industrial pursuit, or the work of the farm or of the farm home, or who have entered upon the work of a trade or industrial pursuit,”) (2) education for vocational preparation as part of the concept of “technical and vocational education” (used in the 1962 and 1974 UNESCO recommendations) such as science and technology education provided in general education, and preparation “for the exercise of occupations in such fields as industry, agriculture, commerce and the related services,” as well as further education; and (3) “vocational training” (used since the 1962 ILO Recommendation), as “all training designed to prepare any person for initial or later employment or promotion in any branch of economic activity, including such general, vocational and technical education.”

### 2. Classification of periods for institutionalization and development of VET

The comparative institutional history of VET since the modern era is divided into five periods: (1) dismantlement and transformation of the apprenticeship system during the Industrial Revolution, (2) inclusion of various voluntary groups and schools into the public secondary school system, (3) institutionalization of VET at various levels amid the progress of industrialization in the 1960s–70s, (4) development of VET at post-secondary and higher education levels since the 1970s, and (5) VET has been systematized in conjunction with the development of qualifications framework as a means of facilitating vocational education throughout the lifespan, from the late 20th century to the present. This article combines (2) and (3) periods in Section III for the development and expansion of secondary VET and (4) and (5) periods in IV for the development of higher vocational education and the reform of overall vocational education.

## II. Freedom of trade and apprenticeship during the Industrial Revolution: Training new skilled workers

First, let us start with tracing the transformation process of the apprenticeship system, in which absolutist states and the guilds regulated occupational and VET systems that have defined the state of vocational education and training since the modern era. Generally, the modern VET systems have developed in concepts of or in relation with the freedom of trade. This shift allowed for the establishment and operation of businesses without being regulated by *Zunft* (the guild) or the state—that is, freedom of trade, or *Gewerbefreiheit* in German—fostering autonomy (freedom) in the employer-employee relationship. Among English studies, Chapter VIII of Bennet (1926, 266–300), an encyclopedic work, represents a detailed comprehensive comparative history study on the emergence of vocational schools as an alternative to the apprenticeship system. Among Japanese books, Hosoya's classic texts (1944; 1978) comprehensively describe such a study.

### 1. The United Kingdom

In the United Kingdom, “medieval guild monopoly and labor regulations began with the 1349 Statutes of Labourers and were established by the 1563 Statutes of Artificers (Okada 1978).” However, amid the development

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of the factory system through the Industrial Revolution and the *laissez-faire* idea free from state or guild regulation, the absurdity of the system called the Elizabethan Seven-year's Apprenticeship which required long-term restraint and tuition fees for apprentices, continued to be criticized (Smith 1974), leading to the repeal of the Statutes of Artificers in 1814. In this way, the freedom of trade and the reorganization of the vocational education system in the United Kingdom made progress in a manner to abolish the compulsory nature of handicraft legislation (meaning to leave labor relation problems to be resolved through labor-management negotiations).

In the United Kingdom where guild regulations were abolished, however, school vocational education failed to be easily institutionalized instead. In the country, trade unions, such as the Amalgamated Society of Engineers, provided apprenticeship as part of voluntary apprenticeship training for both labor and management. Generally, this was called “craft union apprenticeship” (Miyazawa 1968). For details of trade union activities and labor-management conflicts regarding the craft union apprenticeship, see “The Entrance to a Trade” in Chapter 10, Part 2 (Webb and Webb 1897, 453–613).

The industrial capital side created two career paths—a “learner” system with no apprenticeship and an “upgrading” practice through on-the-job training of unskilled workers—in place of the cumbersome training apprenticeship demanded by trade unions (Tokunaga 1977, 85–87). Under such conditions, the United Kingdom maintained the voluntary apprenticeship and learner system that were regulated by craft unions and companies.

## 2. France, Germany, Japan, and the United States

In contrast to relevant systems in the United Kingdom, VET for skilled workers and engineers in France includes the school model and the school-apprenticeship model. For details about the development of apprenticeship and school vocational education in France, see Léon (1968). According to this, Declaration d'Araldo in 1791, which is two years after the Revolution, banned trade unions (Léon 1968, 59) along with organizing association, undermining the handicraft industry's apprenticeship regulations. Later, training of skilled workers was led by the state. After twists and turns, France created *école manuelle d'apprentissage* (handicraft apprenticeship school) in 1880 (Léon 1968, 120), *école nationale d'enseignement primaire et professionnel* (national school of higher elementary education and vocational education) in 1881 (Léon 1968, 131), *école pratiques de commerce et d'industrie* (school of business and industry, later developed into *collège technique* [technical college]) in 1892, and *école nationale professionnelle* (national vocational school) in 1893 (Léon 1968, 131). Under the Astier Law of 1919, municipal initial *cours de la formation professionnelle* (vocational courses) were held (Shimura 1978, 295–298).

In Germany, the guild apprenticeship system remained unshaken even amid the growth of factory industry and commerce and the development of freedom of trade. *Zunft* (guilds or trade association formed by craftsmen or tradespeople working in the same field, such as carpentry, blacksmithing, or weaving), where organizing is not prohibited, survived as *Innung* (guild or trade association at the regional level) thanks to the expansion of business and freedom of association. The apprenticeship system (apprentice ownership and training) was recognized for business freedom for new industry and commerce companies and the handicraft industry by the 1869 *Gewerbeordnung* trade regulations of the North German Confederation (Kletke 1870, the German Empire in 1871). The state approved not only emerging industrial capital but also handicraft industry and small-scale commerce organization and apprentice training by the *Vaterliche Zucht* (paternal authority) right (§119). The apprenticeship system for large-scale industry developed as a unique training system, while countering the apprenticeship system of the handicraft industry's apprenticeship system. However, the state not only guaranteed the requests both from the large-scale technical industry and the handicraft industry, but also protected apprentices and children from abuse by employers. To secure the education of apprentices and children as citizens, § 106 of

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the *Gewerbeordnung* trade regulations required local governments to monitor apprentices' health and ethics and obliged *Meisters* to have their apprentices attend *Fortbildungsschule* (further education school), which originated from 17th century Sunday schools (Spranger 1949). This was the origin of the dual system at present in Germany (Terada 1996, 33–64).

In Japan, an order to dissolve the *Kabunakama* merchant guild as issued in 1841, putting an end to a compulsory guild system licensed by the shogunate government. While mutual-aid trade organizations for voluntary participation were restored in 1884, indentured apprenticeship systems no longer existed. In Japan as well as the United Kingdom, France, and Germany, however, apprenticeship systems for training have survived. In addition to small-scale apprenticeship systems for traditional techniques, technical industry apprenticeship systems were reorganized as craftsman-apprenticeship systems (between 1877 and 1896), factory apprenticeship systems (between 1897 and 1906) for industrial field, or trainee system within enterprise (between 1907 and 1944) that grew amid the development of heavy and chemical industries (Sumiya 1978). In-house training systems that were not backed by cross-sectional regulations in enterprises, or social or official qualifications systems, served as an alternative function to the apprenticeship systems in Japan. In the absence of social regulations in Japan, there was large room for vocational school education, called *jitsugyo kyoiku*, or vocational education, to develop from the initial industrialization stage.

In the United States, which had been a British colony, the apprenticeship system was introduced in the mid-17th century, especially on the East Coast, including Massachusetts in 1642 (Roberts 1965, 52–57). In the absence of guilds to support such systems, employers and apprentices voluntarily participated in the systems. They included some institutional systems that applied only to poor and orphaned children when the 1601 British Poor Law was implemented in the colony. These systems declined amid the Industrial Revolution and the factory system's spread in the 19th century. Young workers underwent on-the-job training provided by their parents or senior colleagues (Gordon 2008, 3–6).

### **III. Institutionalization and expansion of secondary vocational education and training after WWII**

#### **1. Development model**

The 1962 ILO and UNESCO recommendations cited at the outset of this article pioneered the full-fledged multilateral comparison of VET systems, beginning with the patterning learning sites (learning modes) before discussing the aspects of VET systems and VET policy trends in each country. For instance, UNESCO (1962) identifies eight different patterns of technical and vocational education. These patterns include variations like “technical and vocational education, including practical training,” a system that blend school (theoretical) education with practical training, and a “sandwich system” where both school education and practical training alternate. The OECD (Grégoire 1969, 21–68) divides “various vocational education systems,” into types such as apprenticeship-based systems, school-based systems, mixed systems of both, and a high school vocational education program integrated with general education (US).

The author paid attention to these arguments and regulators of the training process, reinforced the typology of Greinert (1993; 1994) that extracted three models (market, school, and dual models), and schemed a framework for comparing VET systems from viewpoints such as the temporal relationship (transition relationship) between education and training, sharing of content, and the characteristics of qualifications, as illustrated in Table 1.

#### **2. Parallel model covering general and specialized theoretical knowledge and technical and vocational education training**

While there was a movement for establishment of the Mechanics' Institutes as learning private institutes for

Table 1. Patterns of major vocational education and training (VET) in secondary education

Progress / transformation process	Country / Institutions	Regulator / Qualifications acquired	
		School education	In-house training
Parallel and dual model	Germany / <i>Duales System</i> (dual system)	State / <i>Teilzeite-Berufsschule</i> Compulsory vocational school (part-time)	Training for qualification for <i>Facharbeiter</i> (skilled workers under the 1969 Vocational Training Act) and <i>Geselle</i> (journeymen under the Craftsmanship Regulation Act)
	Germany / <i>Berufsfachshule</i> (full-time vocational school)	Various assistant jobs under the state law	Considerable amount of workplace-based practical training
	UK / Further education	Government / Recommended further education (Qualifications by the City and Guild of London Institute and other organizations)	Promotion under the 1964 Industrial Training Act
	France / <i>Centre de formation d'apprentis</i> (apprentice training center)	Government and State / <i>Centre de formation d'apprentis</i> (apprentice training center)	Compulsory practical training
Shared serial model	France / <i>Lycée technologique</i> (technological high school)	Government / <i>Baccalauréat Technologique</i> (BacT, technological baccalaureat)	OJT
		Government / <i>Baccalauréat Professionnel</i> (BacP, professional baccalaureat)	
	France / <i>Lycée professionnel</i> (vocational high school)	Government / <i>Certificat d'aptitude professionnelle</i> (CAP, professional qualification)	OJT
		Government / <i>Brevet d'études professionnelles</i> (BEP, vocational education license)	
	Japan / Specialized high school	Government / Graduation certificate	OJT, Off-JT
	US / Senior high school	State / Diploma and industry certificate	OJT

Source: Created by the author.

skilled workers in some manufacturing cities in the United Kingdom between the late 18th and the 19th centuries, further education has remained a main VET system in the country (Bennet 1926, 308; Kato 1987, 34–104). Dating back to 1878, the London Science and Art Department for qualification tests and certification for craftsmen, and Livery Companies originating from medieval guilds established the City and Guild of London Institute (CGLI). This influenced on other regions in the country and encouraged further education at colleges and other institutions (Bennet 1926, 279–284).

The Education Act of 1944 provided a UK framework for a nationwide technical and vocational education school system following the 1926 Hadow Reports (Board of Education 1927). The Act established compulsory education for children aged between 5 and 15 and three secondary schools for those aged 11 and older – grammar,

technical, and new modern schools. In addition, it placed various VET systems in further education after secondary education. As modern schools for most secondary education students covered students aged up to 15 (as is the case with junior high school students in Japan), however, further education included not only post-secondary education but also upper secondary education (Mizuno 1978). VET in further education included practices not only at full-time technical college but also mainly at part-time courses. As indicated by Table 2, further education students concentrated at part-time courses (including evening courses). On-the-job training at companies and vocational further education supplemented each other. This can be described as an irregular dual system, combining apprenticeship and supplementary education, although it differs from the German dual system combining the regular apprenticeship system and compulsory supplementary education.

Germany’s parallel type VET is a dual system. The 1869 *Gewerbeordnung* trade regulations have led to the present dual system through the modernization of the apprenticeship (the inclusion of the apprenticeship into the labor law system) and the transformation of supplementary education schools into the present vocational schools (for vocational supplementary education instead of general supplementary education). The modernization and transformation process included the emergence of a vocational training concept in the Weimar era, a change in the view of the training relationship under an Order by the Prussian minister of commerce and industry in 1923 that introduced the viewpoint of labor rights and relations, and a Prussian Compulsory Vocational School Order (Terada 1996, 276–328).

The reorganization of the secondary school system and the positioning of the dual system at the upper secondary education level were left until after World War II. In this process, the Hamburg Agreement of 1964 between states created the *Hauptschule* as a new five-year lower secondary school to compete with the *Gymnasium*, and *Realschule*, as seen in the United Kingdom. On the *Hauptschule* the apprenticeship system and a vocational supplementary evening schools were topped.

In particular, these three secondary schools are described in a little more detail, The *Hauptschule* is a five-year educational program that follows the completion of a four-year elementary school. Upon graduation of *Hauptschule*, students typically proceed to a dual system, specializing in handicrafts and industry. The *Gymnasium* also operates on a six-year program, with students having the option to pursue further education to obtain a university admission. Following the completion of the initial six-year program, students can enter a later stage, typically consisting of a two-year program. This advanced stage focuses on preparing students for university studies and ultimately obtaining a degree. The *Realschule* consists of a six-year program following elementary school. Upon graduation of *Realschule*, students proceed to a dual vocational training system focused on commerce and services. Alternatively, they may choose to enter a full-time vocational school.

The dual system was defined by *Deutscher Ausschuss für das Erziehungs-und Bildungswesen* (German Committee for Education and Training) in 1966 as “parallel training in school and company” (Deutscher Ausschuss 1966, S.418). Its institutionalization was completed by the education system structure plan of the

Table 2. Number of further education students by student type (1946–1970)

(Unit: 1,000 persons)

Student type	1946-47	1956	1963	1970
Full-time course (including the “sandwich course”)	45	76	184	274
Part-time day course	196	469	613	749
Part-time evening course	527	724	779	736
Evening institute	827	980	1,075	1,415
Total	1,595	2,249	2,651	3,174

Source: Cantor and Roberts (1972, 1).



Table 3. Number of upper secondary students by school type in Germany (1960–2000, every 5 years)  
(Unit: 1,000 persons)

Fiscal year (January – December)	Upper gymnasium	<i>Berufsschule</i> (vocational school), mostly dual system students	<i>Berufsfachschule</i> (full-time vocational school)	<i>Fachoberschule</i> (specialized upper secondary school)
1960	211.7	1,661.9	125.7	—
1965	197.2	1,780.0	148.5	—
1970	303.7	1,599.4	182.7	—
1975	455.5	1,607.3	270.8	—
1980	623.5	1,847.5	325.6	55.5
1985	639.3	1,893.3	339.7	50.5
1990	496.7	1,469.4	245.6	52.9
1995	618.5	1,556.4	294.6	54.5
2000	651.6	1,796.9	400.4	66.3

Source: Federal Ministry of Education and Research (BMBF) (2002, 56–59).

Notes: 1. Data for West Germany until 1990; thereafter, for unified Germany.

2. In fiscal year 2000, 94% of students at *Berufsschule* are dual system students.

committee in 1970 and the *Berufsbildungsgesetz* (Vocational Training Act) of 1969, just a century after the 1869 *Gewerbeordnung* trade regulations.

The German dual system uses some two-thirds of the total training hours for trainees in companies and is governed by the legal principles of labor contracts (Bundesministerium 1996, §3). Vocational schools where trainees study for 8 to 12 hours per week are put under each state’s school law (Terada 2003).

As shown in Table 3, the number of dual system students remained robust between 1960 and 2000, while an increase was seen in students who advanced to the upper Gymnasium as a path to universities and full-time vocational schools for training assistants. Although “a crisis of the dual system” was discussed among researchers in the 1990s, business and trade union circles were not ready to abandon the dual system that they saw as a strength of the German economy (Terada 2003, 177–189).

### 3. Full-time school model and subsequent company training

The United States, less influenced by the apprenticeship system, legislated or institutionalized vocational schools positioned for secondary education earliest among developed countries. In 1917, the United States enacted the Vocational Education Act of 1917, commonly known as the “Smith-Hughes Act.” While providing for mainly the subsidization for agricultural, technical industry, commercial, housekeeping, and other vocational education teachers, the creation of the Federal Board of Vocational Education, and the state-level programs for each industrial sector, the Act institutionalized full-time vocational schools apart from general high schools, covering technical industry schools called trade and industrial schools that had been developed since the 19th century, public high schools’ commercial courses, and agricultural secondary schools (Roberts 1965, 107–113). Although the term “high school vocational education” is not found in the Act, “students aged 14 or more” was, in fact, included to effectively cover high school vocational education (Yokoo 2013).

As developed countries were commonly influenced by the abovementioned 1962 UNESCO and ILO recommendations after World War II, the US Vocational Act of 1963 (US Department of Health, Education and Welfare 1963) promoted the transformation of part-time vocational education into full-time education, playing a key role in expanding vocational education. Following subsequent amendments to the Vocational Education Act and the enactment of related laws, the number of independent vocational and specialized high schools reached

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about 1,000 out of a total of about 9,500 high schools in the first half of the 2000s. Furthermore, the number of vocational education centers (called career centers or career academies), which enrolled general (comprehensive) high school students for one to several days a week as the school year progressed, increased to about 800. In the United States, VET is not limited to non-academic students but is universal for all high school students. Students taking at least one credit of vocational education (equivalent to 120 hours) account for more than 90% of all high school students. “Occupational investor” students who took multiple-area vocational classes for three or more credits accounted for 44.5% in 2000 and “occupational concentrator” students who took single-area classes for three or more credits accounted for 26.0% (Terada 2011, 139).

Table 1 specifies “state diploma and industry certificate” for the United States regarding school education, indicating a system to provide high school graduates with not only diplomas but also occupational certificates (ACTE 2017) in line with the promotion of vocational education under the National Skill Standards Act of 1994 (Taniguchi and Hirayama 2003).

As well as the United Kingdom, France promoted vocational education at secondary school level and discussions on the matter during World War II. France, where the introduction of vocational education at schools was relatively smooth, reorganized or established *centre d'apprentissage* (vocational training center) for primary school students in 1939 and national vocational schools and technical colleges for secondary school students in 1941 (Léon 1968, 141). Following the other reorganization of vocational education, France launched *Baccalauréat professionnel* (professional baccalaureat) course at *lycée professionnel* (vocational high school) at the upper secondary education level.

According to the latest information in Kyomen (2021, 272–285), *lycées professionnels* have more than 470,000 students, 88 programs of three-year *Baccalauréat professionnel* (BacP, the university admission qualification), and about 200 programs of two-year *Certificat d'aptitude professionnell* (CAP, the certification of professional aptitude).

In addition, 425,000 students are registered at *centres de formation d'apprentis* (apprentice training centers) (for students aged between 16 and 26) which represent as a loose dual system to provide BacP and CAP qualifications equal to those at *lycées professionnels*. According to Murata (2011), 330,000 students or trainees were registered for Bac qualifications (professional baccalaureat and technological baccalaureat) for Level IV (3a and 3b of the UNESCO International Standard Classification of Education, ISCED) and for CAP and BEP (*Brevet d'études professionnelles*, vocational education license) qualifications for Level V (3c of the ISCED) as of 2008. These data indicate that France does not necessarily represent any simple model of a VET school.

#### 4. Japan's high school vocational education

How has vocational education been in Japan in comparison with other developed countries? Japan has given greater priority to full-time school vocational education than France and the United States and led school vocational education to be supplemented by subsequent company training after graduation.

School systems before and after the end of World War II were structurally different, indicating unique Japanese conditions regarding vocational education. During the middle of the Meiji period, as initial vocational education institutions for public vocational education, to which students attended after completing the primary school called *jinjo shogakko*, Japan founded German-type “vocational supplementary schools” for agriculture, technical industry and commerce in 1893 and French-type “apprentice schools” which served as supplementary evening school in 1894. In the Taisho period, Japan established full-time *shokko gakko* (craftsman schools) in each region. The word “*jistugyo kyoiku*” (usually translated as vocational education) is peculiar to Japan. According to Eiichi Shibusawa, it was translated as business education and defined, as “benefitting not only the students themselves but also their society or state,” indicating a state-oriented concept (Shibusawa 1912, 221–222).

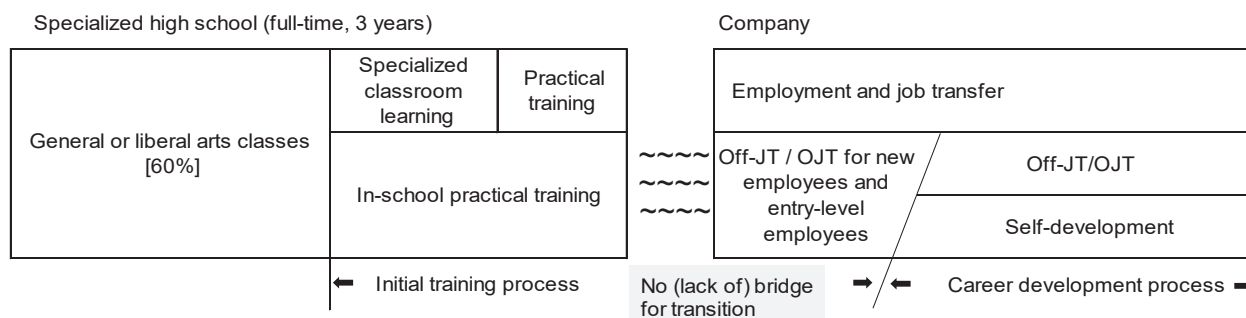


In 1899, the education of middle-level engineers and employees engaging in commerce was institutionalized under the Vocational School Order (Terada 2011, 17–21). Since the Meiji period, VET at primary and secondary education levels has been undertaken by school and succeeded (or handed over) by company. In the unique Japanese system, however, vocational schools and companies have not shared training and programs.

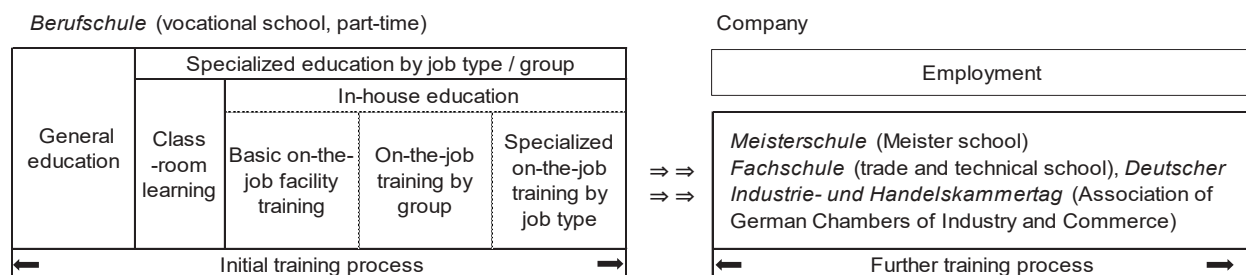
Under a structural reform after World War II, vocational supplementary schools and craftsman schools were transformed into high schools in line with the US concept of vocational courses and vocational high schools. Since the enactment of the Industrial Education Promotion Act in 1951 to subsidize high school vocational education, the concept of *sangyo kyoiku* (industrial education), which is difficult to translate into English, German, or any other foreign language, as is the case with *jitsugyo kyoiku* (vocational education), has spread. *Sangyo kyoiku* differed somewhat from *jitsugyo kyoiku* before the end of the war and represented “a concept unique to Japan that gave priority to requirements from a society enhancing productivity,” indicating a national intention to achieve postwar reconstruction and high economic growth, rather than individualistic or profit-oriented vocational education (Motoki 1973a, 413, 1973b, 10).

The word *sangyo kyoiku* correctly indicates the characteristics of Japan’s VET. In postwar Japan, company vocational training free from official regulations has been also called *Sangyo kunren* (industrial training). Japan’s vocational education at school, excluding VET and professional training for national qualifications, differs from such education linked directly to occupational labor markets or employment systems in Europe and focuses on mainly special education in each industry. While higher education and in-house education were promoted, the goal of training “commercial, business administration, and clerical workers” and “middle-level engineers” for technical curriculum guidelines until 1970 was changed to the acquisition of commercial and technical “basics” in the high school curriculum guidelines for commercial courses in 1970 and those for technical courses in 1978. The government’s Science Education and Vocational Education Council in 1985 described the new goal as training of “future specialists,” giving up completing vocational education (Terada 2011, 72–74).

◆ Japan: Serial model



◆ Germany: Parallel and dual model



Source: Created by the author (Terada 2011, 76).

Figure 1. Japan’s high school vocational education, compared with Germany’s parallel and dual model

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Figure 1 compares the Japan's serial model with the Germany's dual model in terms of the school-to-work transition (school and employers shares the role of education). It shows how schools and companies shared time and content details for VET during the decades of the 1960s through the 1970s. The structure is basically common to non-qualification vocational and professional education at upper secondary and higher education levels.

In Japan, there is a lack of bridge for transition between schools and companies in vocational training and development (sharing of responsibilities between school and company), leading students to entering the workforce without practical experience. Quite little specialized education at school prepares students for "internal training in the company" (rather than simultaneously complementing), and after employment, OJT and off-JT linked to Japanese personnel placement policies are a continuation (serial) of school vocational education.

Thus, vocational education at school focuses on basic theoretical aspect in the classroom with no specific work experience. Perhaps because of Japan's internal labor market, the formation of an academic meritocracy, or the all-too-well-known development of in-company education, Japanese vocational education is often considered as a "market model" (company-oriented). Things are not that simple. It is a "serial compromise between school and market-oriented models."

## **IV. Development of higher vocational education and training since the 1970s**

### **1. Vertical development of qualifications framework and education systems**

The development of vocational education at the higher education level has been triggered by the sophistication of the occupational structure, including the expansion and diffusion of tertiary education following the secondary education expansion, the vertical organization of the higher education school system, and the creation of associate professional occupations in the ILO International Standard Classification of Occupations in 1987 (Nishizawa 2013). Here, the position of VET at the higher education level in the vertical development of school systems is focused.

First, look at European conditions from the 1970s to the 1980s. In the European Community then, the development of a five-level education system to promote the common vocational training policy from 1963 became a challenge (Terada 2003, 145–158). The five levels were (I) semi-skilled workers, (II) skilled workers, (III) technicians, (IV) higher technicians, and (V) university graduates. The third and fourth levels (III and IV) were subjected to post-secondary vocational education. Based on these levels, the comparability work of vocational training qualification was implemented to confirm the equivalence of qualification training systems at each level.

Among international organizations, the OECD in 1973 established the short-cycle higher education— a level of education placed between post-compulsory/post-secondary education and university degree completion, and put vocational education within its framework. (OECD 1973). Then, the OECD described the "vocationally oriented post-secondary" system as "non-university." UNESCO basically followed this. The 1997 UNESCO International Standard Classification of Education classified university higher education as 5A ("programmes which are theoretically based/research preparatory (history, philosophy, mathematics, etc.) or giving access to professions with high skills requirements (e.g., medicine, dentistry, architecture, etc.)") (UNESCO 1997, 84) and non-university higher education as 5B (those programs which are practical/technical/occupationally specific). Non-university higher education was defined as 2-to-3-year practically oriented and occupationally specific skills programs rather than programs for acquiring the 5A qualification for advancement to theory-oriented research programs (UNESCO 1997, 89). It was limited to short-term programs.

Later, however, the European Qualifications Framework (EQF) 2008, which was developed to ensure the commonality of students' educational advancement, mobility, and post-graduation outcomes (employability) across Europe through the Bologna process since 1999, included not only Level 5 (short term) but also a higher

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level (Level 6) in vocational education at the higher education level (European Community 2008, 1). The Bologna process is a series of ministerial meetings and agreements among member states, aiming at bringing coherent quality and recognition standards of degrees (consisting of bachelor's, master's, and doctoral studies) in higher education across Europe.

## 2. Changes in higher vocational education of each country: Bachelor's degree and dual programs

While globalized VET at the higher education level still varies by country, attempts have been made not only to classify VET systems in higher education by academic nature (5A or 5B) and terms, but also to compare such systems by the standard of whether education and training objectives are specialized or combination. OECD (1973, 15–17) classified post-secondary level VET by embodiment type into three models – (1) the multi-purpose model (VET in parallel with academic education, further education, preparation for advancement to universities, etc.), (2) the specialized model (programs specialized for occupation), and (3) the binary model (independent systems separated from universities and further education institutions). Grubb (2003, 3.1) renames the second model as “unitary institution” and applies each national system to the OECD classification concept. US and Canadian community colleges and Australian TAFE (Technical and Further Education) colleges are cited for the first model, universities of applied sciences in the German-speaking sphere and Northern Europe (including *Fachhochschule* in Germany) for the second model, and US and Canadian community colleges, British further education colleges, and vocational programs of French universities' colleges (including IUT technical colleges, STS higher technician schools, etc.) for the third model.

These comparisons, or classifications position VET at the higher education level as 5B or non-university. Given developments over the past two decades, however, such classifications should be modified somewhat. Modifications include relating 5B to universities (OECD 2012, 14, Frommberger 2019, 303–308) and extending 5A or bachelor's degree programs into VET, as summarized below:

First, the United Kingdom has had polytechnic universities and colleges since a 1966 *white paper on polytechnics and colleges*. Polytechnic college that responded to higher education demand differ from other colleges and are characterized by “poly” (many) to cover science, technology, and social science programs or are known as “liberal science colleges” (Cantor and Roberts 1972, 37). Polytechnic colleges have been absorbed by universities since 1992 (Murata and Shinohara 2016, 37–39). They have been introduced in Muslim countries as well as in Japan—non-academic degree institutions, *Shokugyo noryoku kaihatsu daigakko* (polytechnic university) (since 1999).

Second, Germany has had a *Fachhochschule* (university of applied sciences) model separated from academic universities due to different objectives. Since North Rhine-Westphalia State introduced the model in 1969 almost at the same time as the United Kingdom's introduction of polytechnic colleges, the model has spread to almost all German states. The model was also introduced in North European countries, such as Finland (in 1992), and in Japan (*Senmon-shoku daigaku*, called professional universities, started in 2019) (Terada 2021a, 7–8). Germany built on the state engineering school and *Fachschule* (trade and technical school) to establish the education of a university of applied sciences. It was intended to improve the status of students by allowing them to obtain the degree of Diplom (FH) degree and prepare them for professional activities at home and abroad with applied learning and the acquisition of academic knowledge, which require the application of academic cognition and method (*Ministerium des Innern des Landes Nordrhein Westfalen* [Ministry of the Interior of the State of North Rhine-Westphalia] 2021: §3). In the 2019 and 2020 winter semester, Germany had 213 university of applied sciences with 1.023 million students against 107 universities with 1.177 million students (Statistisches Bundesamt 2020, SS. 7–8). University of applied science, thus, rival universities regarding the number of students.

Students at university of applied sciences are those who completed lower *Gymnasium* or *Realschule* programs and acquired university of applied sciences admission qualifications at *Fachoberschule* schools (specialized

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upper secondary school). University of applied sciences is a dual-system oriented institution by nature as it requires students to complete a mandatory semester-long internship in a company to ensure the application and practice of specialized skills (Terada 2011, 5, 133–138). In addition, Germany has introduced a dual program combining the bachelor program and a skilled worker qualification program under the secondary-level dual system since 1996 (Terada 2020a). Japan's professional universities and junior colleges, as well as "the applied professional postsecondary course" introduced in the *senmon gakko* (vocational school) in fiscal 2013, are primarily based on the German dual system.

Third, bachelor's degree programs were incorporated into 5B higher education institutions, such as professional or other colleges. There are various cases for the incorporation, including the following cases that the author surveyed by direct visits to specific institutions around 2015. They are courses for preparation for transfer to universities at U.S. community colleges (in Ohio and Michigan) (Terada 2014, 1–2), South Korean technical colleges (Dongyang Mirae University in Seoul, Daejeong Health Sciences College in Daejeong, Yeungjin Technical College in Daegu) (Terada 2021b), an Australian TAFE (Northern Sydney Institute) (Nakamura and Terada 2016), and an attempt to connect a bachelor's degree program to a diploma course at the School of Vocational Studies of IPB University (current College of Vocational Studies IPB University) in the north of Jakarta, Indonesia (an English presentation showed when visiting survey is conducted, in 2015). The Indonesian case yielded a somewhat unexpected outcome.

## V. Implications for Japan

Finally, we will discuss the implications of the abovementioned status of VET development in other countries, particularly for Japan's VET system at the secondary and higher education levels.

### 1. Segmented higher education system

Japan's higher education system, along with VET at the higher education level, consists of separate institutions that lack comparability between them. They are hampered by the administrative jurisdictional barriers governing each institution. In particular, institutions like specialized vocational education institutions such as *kosen* (*koto senmon gakko*, colleges of technology), and Japanese type of the "polytechnics" (equivalent to universities and colleges for long-term program), and other special training colleges, which make up the majority of VET students (demographically, if junior colleges are included), are not entitled to award associate or bachelor's degrees. This creates a separation between vocational education and traditional academic programs, as they are designed to be incompatible with each other in the usual educational framework.

Discussions at a special committee on career and vocational education (between September 2009 and December 2012) and a special committee on institutionalizing new higher education schools for practical vocational education (between May 2015 and May 2016) within the Central Council for Education, which led to the introduction of professional universities and colleges from 2019, provided a chance for Japan to overcome the segmentation of higher academic education and higher vocational education. Consequently, however, these discussions resulted in the creation of professional universities and junior colleges as a new sector, or segment, which add to the conventional education system. Thus, the segmentation of higher education in general and higher vocational education remains a historical challenge for Japan's higher education.

### 2. Development of qualifications framework and competency or competence viewpoint

Vocational education at the higher education level is segmented partially because there is not any common measure to position the bachelor's or associate degree level or the so-called diploma level after secondary education among many countries. Not only foreign developed countries other than the United States but also

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Asian countries have developed or are developing qualifications frameworks. They include the abovementioned EQF, DQR (*Deutscher Qualifikationsrahmen, Bundesministerium* [German Qualifications Framework for Lifelong Learning], 2013), AQR (ASEAN Qualifications Reference Framework, 2016), and AQF (Australian Qualification Framework Council, 2013). Important are the drawing levels of VET institutions and segments and the standards, or descriptors for their assessment.

The EQF adopts knowledge, skills, and competence (responsibility and autonomy) as the descriptors of competency at each level. The DQR unifies descriptors as *Kompetenzen* (competence) divided into *Fachkompetenz* (professional competence) and *Personale Kompetenz* (personal competence). Professional competence covers knowledge and skills, while personal competence includes social competence (group skills, leadership, communication skills, etc.) and personal competence (autonomy, responsibility, learning performance, etc.). While being almost the same as the EQF, the AQR adopts two domains, one is knowledge and skills, and the other, application and responsibility as descriptors. The Australian framework adopts knowledge, skills, and application. The author considers that the development of competencies such as social competence, and application skills to demonstrate autonomy, which are specifically cultivated by VET, with its focus on practical skills and training, is highly important, alongside specialized theoretical knowledge and skills. Additionally, although VET qualification criteria may not explicitly include them, work-based learning emphasizing work management skills such as each task arrangement and its planning, is also essential.

In the United States, vocational education has been restated as Career and Technical Education (CTE) to cover work attitude, and employability skills. Germany amended its *Berufsbildungsgesetz* (Vocational Training Act) in 2005 to redefine vocational training as providing professional skills, knowledge, and abilities to act—*Berufliche Handlungsfähigkeit* (professional capacity to act), instead of special skills and knowledge as earlier defined (Terada 2020b).

### **3. Supplementing by parallel and dual model with partnership between institutions for shared serial model with weak partnership in school-to-work transition**

To institutionally guarantee the development of social, application, and practical competence as VET quality assessment standards (descriptors), work experience and practical training should be recognized as essential factor for associate and bachelor's degrees. In terms of constructing qualifications framework, however, great constraints on the recognition exist in the Japanese VET system, which focuses on basics of the specialty and general classes in VET at the secondary and higher education levels and leaves the development of specialized and practical skills for company training and lifelong learning, as indicated by Figure 1. In addition to the development of the qualifications framework, the structural transformation of the VET system is required in Japan.

Since the government's 2003 *Wakamono jiritsu chosen puran* (Youth Independence and Challenge Plan), Japanese version of the dual system has been institutionalized at specialized course in high schools and polytechnic colleges. Furthermore, the applied professional postsecondary course of the specialized training college, as well as professional universities and junior colleges have been introduced recently as mentioned above. On the other hand, long-term internships at companies linked to capstone courses in universities have been recommended by the government (MEXT and METI 2019). As the debate on "job-based employment" (Hamaguchi 2013) develops and companies' initiatives for skill assessment of university graduates expand, the challenges should and will attract attention to improving or developing a VET system through supplementing the "shared serial model with weak (or lack of) partnership between institutions" by the parallel and dual model with partnership between institutions in the school-to-work transition.

This paper is based on the author's article "*Shokugyo kyoiku kunren no hikakushi ni okeru nihon: Shokugyo noryoku keisei ni okeru gakko*



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to *kigyo*” [The Japanese System in Historical Comparisons of Vocational Education and Training: Schools and Companies in the Formation of Vocational Competencies] commissioned by the editorial committee of *The Japanese Journal of Labour Studies* for the special feature “Development of Professional Competencies in Educational Institutions” (vol. 64, no. 742, May 2022, <https://www.jil.go.jp/institute/zassi/backnumber/2022/05/pdf/004-015.pdf>) with additions and amendments in line with the gist of *Japan Labor Issues*.

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## TERADA Moriki

Professor Emeritus, Nagoya University.

