Study on Training for Senior Skilled Workers

A Comparison between Japan and China

DI Yan

Visiting Researcher
The Japan Institute for Labour Policy and Training

Research Fellow
China Academy of Labour and Social Security
Ministry of Labour and Social Security, P.R.China

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Contents

1. Introduction

Nowadays, under the context of globalization of economic activities, the rapidly technological innovation and the change of economic structure in the whole world have caused dramatically industrial structure readjustment within all most of countries. Accordingly, the demand for labor force has also had the constitutive change in both internal and international labor market. The human resources are strategic resources for either an enterprise or a nation. In order to enhance the economic competitiveness, most of countries take the human resources development as a strategy for developing national economy, and most of enterprises take human resources development as one of ways to accumulate their capital. Therefore, the government in a country has obligation and responsibility to help enterprises and individuals of workers to enhance the quality and competence of labor force. The senior skilled workers, as an indispensable portion of whole human resources, have been affecting a national competitiveness to a large extent.

Japan has become the second biggest economic power in the world by taking their diligent efforts after the World War II. One of the most important determinants for this impressive growth is undoubtedly the Japanese vocational training system. Indubitably, in the course of Japanese economic growth, human resources, including senior skilled workers, have made an undeniable contribution to the national economy. Along with the economic prosperity, an efficient system on human resources development was gradually established in Japan. The Japan's economic growth model as well as its human resources development system should be regarded as one of the most successful practices in the world.

China is the biggest developing country in the world. Since the implementation of economic reform and open-up policy in recent over 20 years, its GDP has been grown by over 9 percent of annual average economic growth rate, and it maintained the economic growth in a sound and sustainable manner. Nevertheless, along with the progress of economic system reform and industrial structure adjustment, adding the influence of economic globalization and technological innovation, some pending issues emerged from its internal labor market. One of the most urgent issues is the serious shortage of senior skilled workers. This issue has already become the "bottleneck" which restricts further sustainable development of Chinese economy. Accordingly, learning Japanese experiences on human resources development and drawing on some instructive lessons are beneficial to settle the said issue for China.

1.1 Scope of the Study

The training for senior skilled workers is not an independent activity. It is closely correlated with the elementary education, secondary education, vocational education, vocational training and so on. In regard of all kind of limitations, it is impossible to research all aspects above mentioned in this study. This paper will focus on vocational training, with major space on public vocational training in which can manifest the responsibility of the government, and minor on within-enterprise vocational training.

1.2 Purpose of the Study

The purpose of the study aims to examine the Japanese vocational training practice (including historical and current situation), make a brief comparison between Japanese and Chinese experiences, try to seek what we need to learn from Japanese model for Chinese practice, and attempt to find the implications for Chinese policy-making. The findings of the study may be instructive to improve the system on training senior skilled workers, and such a system would be expected to adapt to the market economic setting in China.

This study is conducted with a macroscopic instead of microscopic dimension. One reason to do so is that the system on training senior skilled workers which matches with China's market economic setting has been not completely established yet, or said imperfect, although Chinese economic reform was commenced more than 20 years ago. Currently, one of crucial matters for Chinese government is to gradually improve the vocational training system. Such a system will be an indispensable portion of the infrastructure that would keep and accelerate the sound economic development in future.

2. Terminology, Methods and Limitations

2.1 Terminology: Senior Skilled Workers and Intellectual Skills

In China, ***Senior skilled workers*** is referred as such kind of front-line workers who are proficient at the specialized knowledge and technology, possessing exquisitely practical skills, and having the competence and ability to tackle and cope with the essential technical and craft-operational problems encountered during their working practices in the fields of production, transports, services industries and so on.

They mainly include workers who have qualification such as advanced skilled workers, technicians, senior technicians, or those who have equivalent professional and corresponding levels of skills, among the whole of technical skilled workers.

Among Japanese researches, a theory of ***intellectual skills*** was developed by Koike & Inoki (Kazuo Koike and Takenori Inoki, 1990). Intellectual skills provide a worker with the ability to handle problems and changes. During working on mass-production assembly lines, the workers may encounter some unusual operations. In accordance with the findings of Kazuo Koike's study, there are two kinds of unusual operations: dealing with problems and handling changes. Dealing with problems requires three types of skills: (a) diagnosis of the source of the problems, (b) rectification of the cause of problems, and (c) inspection capability. Changes occur in different forms: (a) in the amount of products, (b) in the type of products, (c) in the production method, and (d) in the labor mix (Kazuo Koike, 1997, pp. 5-7).

Although there are a few differences between the terminology of *senior skilled workers* in China and *intellectual skills* in Japan, after intensively examined, it may be found out that there are many extremely similar implications covered in both of them.

2.2 Methods of the Study

This paper is based on two interviews, information from the websites and some of published literatures.

Two interviews comprise that one was conducted in Employment and Human Resources Development Organization of Japan (hereinafter called as "EHDO"), and the other was in Japan Vocational Ability Development Association (hereinafter called as "JAVADA"). They are two pillars of public human resources development in Japan.

EHDO was established according to the 'Independent Administrative Organization – Employment and Human Resources Development Organization of Japan Law (Law No. 170 of 2002), and it is an independent administrative organization under the Ministry of Health, Labour and Welfare. EHDO plays a role in national employment policy. It has two functions: one is human resources development, and the other is employment development. The most of national public human resources development facilities are operated by EHDO.

JAVADA is an agency focused on vocational ability evaluation. Its responsibility is contributing to society by establishing intangible infrastructure and system for

developing human resource and career development. The main activities conducted by JAVADA include specifying job requirements and establishing skill evaluation standards, certifying skill and competency levels, organizing skills competitions and promoting social recognition of skills, taking measures to encourage career development, and providing people with databases relating to human resource development.

Furthermore, the information from the website of Ministry of Health, Labour and Welfare (Japan), Japan Organization for Employment of the Elderly and Person with Disabilities, and some of published literatures in JILPT's library are utilized to clarify the public vocational training framework in Japan. Moreover, the information from the website of Ministry of Labour and Social Security (China) and some of published literatures in Chinese are utilized to introduce the Chinese experiences.

As regards within-enterprise vocational training, the previous literatures referred by this research was mainly available from JILPT's library.

2.3 Limitations of the Study

There are three main limitations in this study.

Firstly, as above mentioned, the training on senior skilled workers is not an independent activity. Because of the vast scope and the complexity of process, this study only focuses on vocational training, especially on public vocational training.

Secondly, there are fewer information and materials in English available, especially for within-enterprise vocational training. This is a disadvantageous factor for the study. Maybe some information referred was not updating.

Thirdly, it is difficult to make a comparison on within-enterprise vocational training between Japan and China. There mainly are two reasons to cause such consequence, one is hard to get information on Japanese within-enterprise vocational training; and the other is lack of Chinese counterparts because of too short period experienced for Chinese companies since its economic system reform.

3. Japanese Experiences

3.1 Current Situation of Japanese Economy and Labor Market[1]

3.1.1 Economy Situation

After the end of the World War Ⅱ, the Japanese economy entered a period of high economic growth from 1955 to the first half of the 1970s, with an annual average real growth rate of over 10 percent, and Japan has become the world's second largest economic power right behind the US.

In the 1970s, Japanese economy experienced two separate oil crisis. The first oil crisis made Japan facing the triple hardship of inflation, current account deficit, and the economic downturn in 1974, and its economy recorded negative growth for the first time since the period of the war's end. By drawing on the lessons from the first oil crisis, Japan was able to respond to the second oil crisis without any relatively major confusion, and its economy grew with the stable growth in the region of 3 to 5 percent and a low unemployment rate.

In the first half of the 1990s, Japan experienced the emergence and collapse of a "bubble economy". The reason caused such economic adversity was contributed to a vicious circle formed by deflation, together with the problems of excessive debt and non-performing loans.

Passing through temporary adjusting phases, the Japanese economy began recovering at the start of 2002. At present, the main issues faced by the Japanese economy may be the question of how can to build a sustainable and dynamic economic society.

3.1.2 Outline of Labor Market

Japan's population experienced such a change, increased from 72.15 million in November 1945 (immediately after the end of the World War Ⅱ), to a peak of 127.78 million in 2004, but declined to 127.76 million in October 2005.

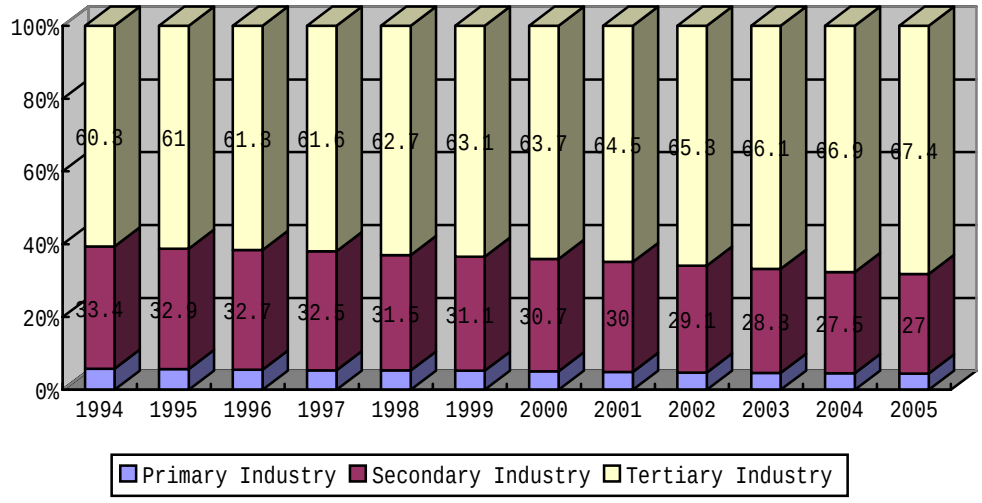
In 2004, the number of Japanese people capable of working was 109.90 million (including all persons aged 15 and elder). Among them, the labor force population

[1] The source of the figures and contents in this port was from and based on the "Labor Situation in Japan and Analysis: General Overview 2006/2007", http://www.jil.go.jp/english/laborinfo/library/documents/Labor2006_2007.pdf

reached 66.42 million, and the labor force ratio[2] was 60.4 percent. In 2005, the unemployment rate was 4.4 percent.

During the period of 1994 to 2005, the employment structure has experienced the following changes: (1) the proportion of those employed in primary industry decreased from 5.8 percent in 1994 to 4.4 percent in 2005; (2) the proportion in secondary industry also decreased from 33.4 percent in 1994 to 27.0 percent in 2005; and (3) the proportion in tertiary industries, however, steadily rose from 60.3 percent in 1994 to 67.4 percent in 2005. The trends of employment by three industry divisions are represented in Chart 1.

Chart 1 Trends of Employment by Three Industry Divisions



Based on Labor Situation in Japan and Analysis: General Overview 2006/2007, p.25
http://www.jil.go.jp/english/laborinfo/library/documents/Labor2006_2007.pdf
Source: Labour Force Survey, Statistics Bureau, Ministry of Internal Affairs and Communication
Notes: 1) Primary industry means Agro-forestry and Fishery.
2) Secondary industry means Mining, Construction, and Manufacturing.
3) Tertiary industry means industries other than above, excluding those non-categorizable.

As for the diversification in forms of employment, the number of non-regular staff has been rising dramatically because of some reasons, such as the development of economic services, the intensification of international competition, the advances in IT, and the evolution and diversification of workers' values. The forms of non-regular staff cover contracted employee, entrusted employee, transferred worker, dispatched worker,

[2] The meaning of "labor force ratio" is referred to the ratio of the labor force to the general population aged 15 and older

temporary worker, part-time worker, etc. The proportion of non-regular staff comprised 34.6 percent of all workers, according to a survey conducted by Ministry of Health, Labour and Welfare in 2003. The largest group of these non-regular workers was part-time workers, and most of part-time workers were housewives.

In 2007, human resource development in Japan faces some issues, such as the coming retirement of large numbers of baby boomers paralleling with the concerns on how to transfer the skills and technology, the decrease in young employees accompanying an aging society, and the increase in "freeters (job hopping part-time worker)" and "NEETs (young people Not in Education, Employment or Training)".

3.2 History of Vocational Training

3.2.1 Vocational Training before Vocational Training Law in 1958

Vocational training in prewar years was confined to either the skill development scheme in large firms or the archaic apprenticeship in the artisan sectors. There were virtually no public vocational training machineries. And in the immediate postwar years, there emerged public institution as an unemployment relief measure[3].

The vocational training from 1945, the year of war-ended, to 1958 probably comprised two training systems, i.e. one was job training[4] (職業補導) based on the Employment Security Law of 1947, and the other was training for skilled workers (技能者の養成) under the Labor Standard Law of 1947.

Job training was a countermeasure to quick relief unemployment for a number of unemployed persons, such as demobilized army-members, the war-victims, and persons came back from the war-battlefields. It changed the originally charitable nature and exerted the function of reasonably adjusting the supply of and demand for the labor force. The legislative framework for public vocational training was provided by the Employment Security Law of 1947. The Law established public vocational training centers, and stipulated standards for the rehabilitation and vocational training of the handicapped[5].

The provision of training for skilled workers under the Labor Standard Law removed

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[3] The Japan Institute of Labour (1969), Vocational Training in Japan, p.10

[4] Among the materials available in English, there is no the expression of the term of "職業補導" . In this paper, temporarily use "job training" to refer "職業補導". It means vocational training for demobilized soldiers, the war-disabled, and persons came back from the war-battlefield

[5] Shunichiro Umetani (1980), Vocational Training in Japan, p.33

the apprenticeship components with feudal feature, and it aimed at improving brutal work condition, taking fostering the workers' skills as main goal, and providing protection and training on workers.

In 10 years after postwar, the rapid economic growth and the concomitant leap development of science and technology in Japan have incurred new needs for training and retraining on skilled workers in production front-line. Based on the original systems of job training and training for skilled workers, in order to meet the needs of industries for skilled workers, after adding a system of trade skill test, the Vocational Training Law was promulgated in May, 1958. Since then, a comprehensive vocational training system was established in Japan.

3.2.2 Vocational Training under Vocational Training Law

Vocational Training after Vocational Training Law in 1958

In the comprehensive vocational training system under the Vocational Training Law in 1958, the original job training was evolved to public vocational training, and the training for skilled workers was evolved to within-enterprise vocational training. The law stressed the role that vocational training could play in providing a source of young, highly trained manpower for sophisticated factory work[6].

Accordingly, the vocational training was divided into two kinds: one was public vocational training conducted in public vocational training facilities aiming at job-seekers, such as the school-graduates, job-transfers, employees and so on; and the other was within-enterprise vocational training conducted by enterprises aiming at new recruited workers. The following public institutions were established during this period:

(1) General Vocational Training Center

General Vocational Training Centers were established by prefectural governments, and they offered vocational training of “basic skill” for job-seekers.

(2) Comprehensive Vocational Training Center

Comprehensive Vocational Training Centers were established by the Labor Welfare Project Corporation (労働福祉事業団) (later named as Employment Promotion Corporation, and currently named as Employment and Human Resources Development Organization of Japan), and they offered vocational training of “specialized skill” for

[6] Shunichiro Umetani (1980), Vocational Training in Japan, p.33

employees and job-transfers.

(3) Vocational Training Center for the Handicapped

Vocational Training Centers for the Handicapped were the facilities in which offered vocational training for the handicapped in a manner appropriate for their ability and difficult to receive vocational training in general vocational training centers and comprehensive vocational training centers.

(4) Central Vocational Training Institute

The Central Vocational Training Institute conducted investigation, research, and vocational training instructor training. In February 1965, it was renamed as Institute of Vocational Training (職業訓練大学校).

Vocational Training after the Revision in 1969

In October 1969, in order to adapt the changing context of development of labor economy and progress of technological innovation, the Vocational Training Law was revised. The new Law improved the public vocational training system. The types of public vocational training stipulated in the law comprised basic training, upgrading training, ability redevelopment training and retraining, and vocational training instructor training. In the revision, for the first time it encouraged employers to undertake employee training[7].

The name of public vocational training facilities was changed accordingly. The General Vocational Training Center renamed as Special Vocational Training School（専修職業訓練校）. Such schools offered vocational training courses for school-graduates, specialized courses for workers to get general skill, new career skill training for job-transfers, and upgrading training and retraining for workers.

The Comprehensive Vocational Training Center renamed as Advanced Vocational Training School（高等職業訓練校）. It provided school-graduates with vocational training aiming at fostering versatile skills and advanced vocational skills.

The Vocational Training Center for the Handicapped renamed as Vocational Training School for the Handicapped（身体障害者職業訓練校）.

The main activities of Institute of Vocational Training included conducting

[7] Shunichiro Umetani (1980), Vocational Training in Japan, Hamburg, p.37

investigation, research, and vocational training instructor training. The instructors training covered into long-term training courses, short-term training courses, and specialized courses.

By and large, vocational training standards were roughly classified as public vocational training and within-enterprise vocational training before this stage.

Vocational Training after the Revision in 1974

In October 1974, the Vocational Training Law was partially revised. The Vocational Training College（職業訓練短期大学校）and Skill Development Center was established under the revision, and they were run by Employment Promotion Corporation (雇用促進事業団) (currently named as Employment and Human Resources Development Organization of Japan).

Vocational Training Colleges were the facilities in which offered special advanced training courses for fostering workers with high level skills. They also set up the training courses for upgrading training, vocational ability redevelopment training and retraining.

The Skill Development Centers offered courses for upgrading training, vocational ability redevelopment training and retraining.

Vocational Training after the Revision in 1978

In May 1978, with the gradual strictness of employment issues, in order that vocational training adapted to the change in industries, the Vocational Training Law was further revised. This revision laid great emphasis on the following: (1) to improve the implementing system of vocational training, (2) to promote the vocational training operated by private sectors, and (3) to foster the organizations focused their activities on promoting vocational training and trade skill tests.

The names of public vocational training facilities were changed accordingly. The original Special Vocational Training School and Advanced Vocational Training School were unitized as Vocational Training School. Under taking the needs of local employment and the tendency of industrial changing into consideration, the Advanced Vocational Training Schools operated by Employment Promotion Corporation (currently named as Employment and Human Resources Development Organization of Japan) throughout the nation were gradually evolved into Vocational Training Colleges and Skill Development centers.

The public vocational training facilities established in this stage comprised Vocational Training School, Vocational Training College, Skill Development Center, Vocational Training School for the Handicapped, and Institute of Vocational Training.

In April 1978, the Vocational Training Research Center (afterwards named as Training and Research Center, currently name as Human Resources Development Research Center) was established as an institution affiliated to Institute of Vocational Training so as to promote the development of training materials and methods on vocational training.

In order to expand vocational training conducted by private sectors, the original juridical association--National Joint Vocational Training Central Association（全国共同職業訓練中央会）was integrated with Central Trade Skill Test Association into Japan Vocational Ability Development Association. Subsequently, the local governments also established Prefectural Vocational Ability Development Associations. The main responsibilities of central and local Vocational Ability Development Associations aimed to promote the integrating of vocational training and trade skill test, and to provide enterprises with instruction, assistance, consultation, and diffusion on vocational training.

3.2.3 Vocational Training under Human Resources Development Promotion Law

Formulation of Human Resources Development Promotion Law

In June 1985, the Vocational Training Law was revised thoroughly, and renamed as Human Resources Development Promotion Law (HRDPL). The enactment of HRDPL marked the beginning of overall promotion and development of workers' vocational ability throughout their career lives in Japan.

One reason of the law revised was contributed to the change of external context relating to vocational ability development, such as the progress of technological innovation, the exacerbation of aging society, the development of service industries, the globalization of economic activities and so on. Simultaneously, the other reason was a great change in the needs of both labor force' aspiration and vocational ability required by jobs. The new law improved and attached importance to the original within-enterprise vocational training system, while it focused on establishing a comprehensive and planned system of promoting improvement of laborer's skills by means of receiving public vocational training in a voluntary and flexible manner so as to develop laborer's vocational ability throughout their career life.

The original vocational training under the Vocational Training Law took technical workers of secondary industry as the main objects, and aimed to foster necessary skills for taking their jobs. The new revision in 1985 attempted to provide in-time and moderate vocational ability development for all of laborers in their career life-time. It essentially targeted as follows: (1) endowing labor force with vocational ability adapting to the intensely changing socioeconomic environment; (2) offering widespread vocational training focused on vocational ability enhancement and development aimed at all of labor force, not only skilled workers, but also managerial staff and persons worked in service sectors; and (3) providing enterprises with various assistances so as to promote enterprises offering aids to employees for their self-initiative education and ability development.

Vocational Training after the Revision in 1992

In June 1992, the Human Resources Development Promotion Law was revised under the socioeconomic context of the shortage of labor force supply caused by some factors, such as the decline in youth and the serious deviation of worker's skills from the needs of industries, etc. The core contents of the new revision were as follows: (1) strengthening assistances for enterprises and employees in order to promote self-initiative vocational ability development conducted by enterprises and individuals of employees, (2) improving public vocational training system which might provide more opportunities of vocational ability development so as to adapt to the changing and diversified needs of both industries and employees, (3) promoting the implementation of measures on improving skills in order to shape a society where skills were respected, and (4) promoting international cooperation of talents fostering.

Vocational Training after the Revision in 1997

In May 1997, facing the dramatic change in industrial structure, it was necessary for enterprises to enhance the added value of their commodities and develop new realms of their production. In order to meet the needs of fostering workers who grasped advanced and versatile skills, the Human Resources Development Promotion Law was revised again. Its central contents included: (1) improving public vocational training system so as to meet the needs of fostering workers who were with the skills and ability to engage in producing commodities with high added value, and (2) providing projects aimed to assistant employees to conduct vocational ability development in a voluntary and self-aspiration-oriented manner.

With respect to the public vocational training system, it had been improved by

establishing Polytechnic College and Polytechnic University since 1st April, 1999.

(1) Establishing Polytechnic College

Based on the advanced vocational training courses (specialized courses and short-term specialized courses) offered by Vocational Training Colleges, in order to develop and improve the vocational ability of employees with specialized and practical skills, long-term advanced vocational training courses (applied courses and short-term applied courses) were added to the curriculums of Vocational Training Colleges.

The Polytechnic Colleges were evolved from original Vocational Training Colleges. They were the facilities where advanced vocational training courses (specialized courses and short-term specialized courses) were offered.

(2) Establishing Polytechnic University

In April 1999, the original Polytechnic University, the Institute of Research and Development and Tokyo Polytechnic College were integrated into Polytechnic University.

The Polytechnic University remained the activities such as vocational training instructor training, investigation and research on improving vocational training. Especially, it added the advanced courses that were apt to conduct in public vocational training facilities.

(3) Establishing and operating body

Both the Polytechnic University and Polytechnic Colleges were established by the government, and operated by Employment and Human Resources Development Organization of Japan.

Furthermore, the prefectural governments could establish Polytechnic Colleges under approved by Minister of Health, Labour and Welfare. The enterprises which were authorized to conduct vocational training could also establish Vocational Training College.

Vocational Training after the Revision in 2001

The development of technological innovation contributed to computer revolution and economic globalization had led to great change in socioeconomic situation in Japan. As for the supply of labor force, an accelerated aging society had raised the needs of longer career-life for labor force. Meanwhile, the employment notions and manners among the

youth became gradually diversification.

Under such circumstances, in order to meet the changing needs, the Human Resources Development Promotion Law was revised in 2001. The core of new law was mainly as follows: (1) promoting the development and enhancement of occupational capabilities voluntarily and self-initiatively conducted by individuals of labor force throughout their full career-life, and providing assistances for them to design their career-life. Because of the accelerated mobility of labor force, the long-term and planned human resources development only depending on enterprises-oriented was inadequate to meet the changing needs. Consequently, in order to promote enterprises provided supports for their employees' self-initiative vocational abilities development, the government accordingly provided enterprises with specific plan to assist them in conducting human resources development in an appropriate manner such as subsidies, consultation, aids and so on; and (2) improving the system of Trade Skill Test. In order to promote fairly and objectively appraising the vocational ability which was formed by vocational training and practical experiences, those manners, such as entrusting private sectors with the responsibility for operating trade skill test and vocational ability appraising etc., were flexibly applied so as to promote the diffusion of trade skill test and vocational ability appraising system.

3.3 Outline of Vocational Training System

By and large, the vocational training in Japan is classified as public vocational training and vocational training provided by industry itself. In the late case, most of large companies, especially corporations, provide their employees with within-enterprise vocational training; small and medium companies offer vocational training in diversified ways. For employees, there are more opportunities to receive vocational training in large companies than in small and medium companies. The lion's share of vocational training is provided by industries, though no concrete statistics can be available.

In broad sense, the meaning of public vocational training includes vocational training conducted inside public human resources development facilities and outside public facilities but defraying educational expenses in the form of subsidies. The public vocational training in broad sense mainly takes the following forms: (1) vocational training at public human resources development facilities (public vocational training in narrow sense); (2) vocational training in private sectors, such as employers and employer associations, by awarding subsidies; and (3) workers to acquire skills

voluntarily by granting subsidies[8].

Training subjects taught at public human resources development facilities are mostly vocational and technical subjects for industries such as manufacturing and construction, but among the training commissioned to the private sectors, the courses are established in various subjects like computers and social welfare[9].

3.4 Types and Standards of Vocational Training

3.4.1 Vocational Training System

Vocational training system, as a training system was characterized by aiming at human resources development that met the diversified needs of labors and industries and fostered the talents adapting to the changing context, could be classified according to the degree of grasping skills and knowledge or the duration of vocational training. It may be divided into "general vocational training" and "advanced vocational training", also may be divided into "long-time" and "short-time" training curricula. The detailed types stipulated in line with the Ordinance of the Ministry of Health, Labour & Welfare are listed in Table 1 and Table 2.

3.4.2 Standards of Vocational Training System

Because vocational training takes the ability training that adapts to socioeconomic change and suits the actually local situation as the goal, the vocational training standards have to meet the diversified and concrete needs of society and prefectures.

Specially, along with the progress of technological innovation, the rapid development of service industry, and the globaalization of economic activities in recent years, the industrial structure and employment structure has also made great change. Simultaneously, with the acceleration of aging society and the increase of the number of female labor force, the structure of supply of and demand for labor force has also changed accordingly.

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[8] Based on The Japan Institute for Labour Policy and Training (2006), Labor Situation in Japan and Analysis: General Overview 2006/2007, p.112
http://www.jil.go.jp/english/laborinfo/library/documents/Labor2006_2007.pdf

[9] Sources: Same as above

Table 1 **Types of Vocational Training[10]**

Types	Curriculums	Outline of training	Duration and total hours	Facilities of human resources development
General Vocational Training	General courses (普通課程)	Long-term courses for graduates from junior and senior high school, aiming to foster workers with basic and versatile skills and knowledge	Graduates from senior high school, 1 year, total more than 1,400 hours per year; graduates from junior high school, 2 years, total more than 2,800 hours, round 1,400 hours per year	Polytechnic Colleges
	Short-term courses (短期課程)	Short-term courses for employees, job-seekers and transfers, aiming to teach them necessary skills relating to their jobs required (excluding advanced skills)	Less than 6 months (maybe 1 year, depending on the degree of trainees ' skills), total more than 12 hours (10 hours for supervisor training)	Polytechnic Colleges Polytechnic Centers Polytechnic Junior College Polytechnic University
Advanced Vocational Training	Specialized courses (専門課程)	Long-term courses for graduates from senior high school, aiming to foster workers with basic and versatile skills and knowledge	Graduates from senior high school, 2 years, total more than 2,800 hours, round 1,400 hours per year	Polytechnic Colleges Polytechnic Junior College Polytechnic University
	Applied courses (応用課程)	Long-term courses for graduates who accomplished specialized courses, aiming to foster workers with necessary versatile skills and knowledge	Graduates who accomplished specialized courses, 2 years, total more than 2,800 hours, round 1,400 hours per year	Polytechnic Colleges Polytechnic University
	Specialized short-term Courses (専門短期課程)	Short-term courses for employees, aiming to teach them advanced skills and knowledge relating to their jobs required	Less than 6 months (maybe 1 year, depending on the degree of trainees ' skills), total more than 12 hours	Polytechnic Colleges Polytechnic Centers Polytechnic Junior College Polytechnic University
	Applied short-term Courses (応用短期課程)	Short-term courses for employees, aiming to teach them advanced, specialized and practical skills and knowledge relating to their jobs required	Less than 1 year, total more than 60 hours	Polytechnic Colleges Polytechnic University

[10] The author translates based on the Japanese version of 職業訓練教材研究会（平成 14 年 3 月, 厚生労働省職業能力開発局監修）, 職業訓練における 指導の理論と実際, p.8

Table 2 **Types of Training for Vocational Training Instructor [11]**

Types	Curriculums	Outline of training	Duration and total hours	Facilities of human resources development
Training for Instructors	Long-term courses (長期課程)	Courses for graduates from senior high school, aiming to foster them being the vocational training instructors	Graduates from senior high school, 4 years	Polytechnic University
	Specialized courses (専門課程)	Courses for the vocational training instructors and persons who qualify for the vocational training instructors, aiming to keep the qualification as vocational training instructors	6 months or 1 year	
	Research courses (master-degree) (研究課程)	Courses for persons who possessed a basis of advanced and specialized skills and knowledge, aiming to foster the instructors with excellent research ability	Graduates from long-term courses, 2 years	
	Applied research courses (応用研究課程)	Courses for persons who possessed a basis of advanced and specialized skills and knowledge, aiming to foster the instructors with excellent applied, research and development ability	Graduates who accomplished research courses, 1 year	
	Training courses (研修課程)	Updating courses for vocational training instructors	More than 12 hours	

[11] The author translates based on the Japanese version of 職業訓練教材研究会（平成 14 年 3 月, 厚生労働省職業能力開発局監修）, 職業訓練における 指導の理論と実際, p.8

Based on taking both above mentioned needs and concerned changing demands for skills from industries into consideration, MHLW formulated the standards on subjects, curriculums, duration, and hours of vocational training in accordance with the Implementing Regulations of the Human Resources Development Promotion Law, so as to provide vocational training that adapts to the needs of enterprises, laborers and contemporary demands.

Long-term vocational training courses (including basic vocational training under general courses, advanced vocational training under specialized courses, and advanced vocational training under applied courses)

The long-term vocational training courses include the subjects that foster trainees with common skills and knowledge of diversified occupations. While, these courses also provides advanced and versatile specialized skills and knowledge required by each kind of occupations, and such skills and knowledge may play important roles in technological innovation. The establishment of long-term vocational training courses has taken the close relationship between industries and occupations into account.

Among industries, the needs of skills and knowledge are so multi-plicate that the fixed vocational training standards are not required. With respect to the minimum training hours, the general requirements are 1,400 hours per year. Among them, 800-1000 hours are necessary to be guaranteed; the surplus of 400-600 hours may be flexibly arranged according to the concrete needs of regions where the training institutions are located.

Short-term vocational training courses (including short-term courses, specialized short-term courses, and applied short-term courses)

The short-term courses focus on those groups such as employees, elder persons, part-time workers, job-seekers and job transfers, applicants for the examination of trade skill test and vocational ability appraisal, and so on, and these courses aim at offering vocational training to meet the diversified needs. Furthermore, such training takes the current levels of trainee' skills and knowledge into consideration.

With regard to the standards of curriculums, those for supervisors, certified skilled workers, and the persons who work in the realm of occupational safety and health are established compulsorily in line with the Ordinance of MHLW. There are no fixed standards for others excluding the above mentioned, accordingly, the curriculums may be flexibly established upon taking the local needs into account.

The advanced vocational training among short-term specialized courses aims to foster workers advanced skills and knowledge relating to their jobs required. The curriculums may be flexibly established upon taking the local needs into account.

The advanced vocational training among short-term applied courses aims to foster workers advanced, specialized and applicable skills and knowledge relating to their jobs required. The curriculums may also be flexibly established upon taking the local needs into account.

3.5 Administration of Human Resources Development

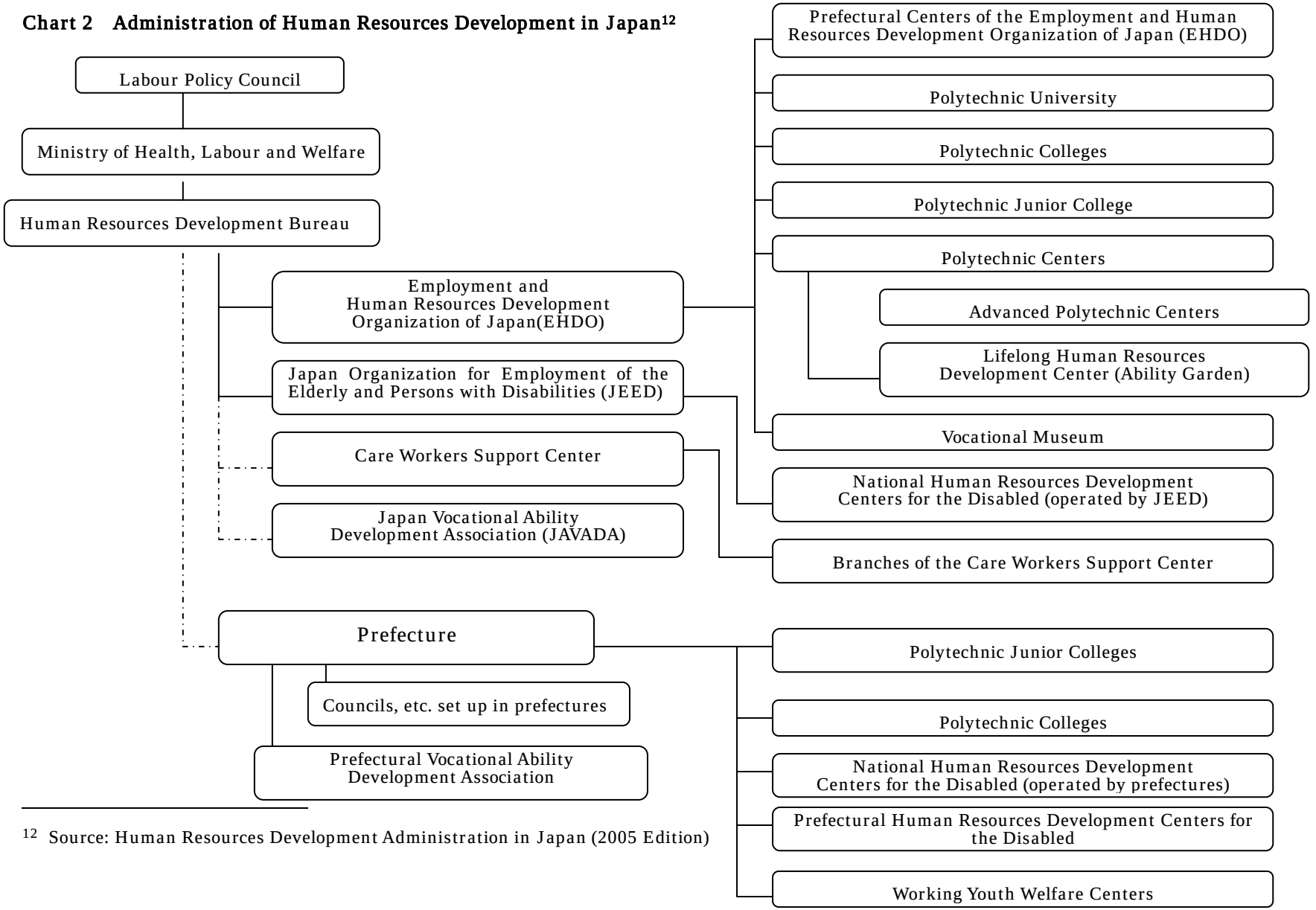
Vocational ability development after postwar was initially begun with the job training based on the Employment Security Law and the training for skilled workers under the Labor Standard Law. These two systems had been integrated since the formulation of the Vocational Training Law in 1958, and then the vocational training was managed in a unified manner. Under such a background, the Ministry of Labor established Vocational Training Department based on the originally relevant divisions. The Vocational Training Department was renamed as Vocational Training Bureau in 1961. Afterwards, with the progress of technological innovation, the development of tertiary industry, and the acceleration of aging society, in order to improve the human resources development system, the Vocational Training Bureau was renamed as Human Resources Development Bureau on July 1st 1974, so as to match with the change of society and economy. The current administration is demonstrated in Chart 2.

Among the framework of Chart 2, there mainly are two pillars in the public human resources development system in Japan. One is the sub-system of public vocational training, and the other is the sub-system of National Trade Skill Testing and Certification.

The public vocational training facilities consist of two portions: one is established by the state, and the other is established by prefectures. The most of national public vocational training facilities, excluding those for the disabled, are operated by EHDO. The facilities for the disabled are operated by Japan Organization for Employment of the Elderly and Persons with Disabilities (hereinafter called “JEED”).

JAVADA plays important roles in the sub-system of National Trade Skill Testing and Certification.

Chart 2 Administration of Human Resources Development in Japan[12]



[12] Source: Human Resources Development Administration in Japan (2005 Edition)

3.6 Relevant Law, Regulations and Standards

The law[13], regulations, and standards on human resources development were enacted respectively in order to secure comprehensive and full implementation of human resources development in Japan. They include the Human Resources Development Promotion Law, the Implementing Regulations of the Human Resources Development Promotion Law, and the Vocational Training Standards.

3.6.1 Human Resources Development Promotion Law

The current edition of Human Resources Development Promotion Law (Law No.64 of July 18, 1969) (hereinafter called as "HRDPL") was revised in 2001. During the progress of this study, it is said that the Law was revised again in June 2006. Nevertheless, due to the updating revision in English could not be available, so this study is still based on the revision of 2001.

Purpose of HRDPL

The purpose of HRDPL is to promote the development and improvement of workers' ability needed for their vocations through comprehensive and deliberate measures. Those measures will contribute to the reinforcement and smoother implementation of human resources development and vocational ability test, and also will secure opportunities for workers to receive educational training or vocational ability test relating to their vocations in a willing and voluntary manner. Consequently, such development and promotion will contribute to assure the security of worker's employment as well as the economic and social development.

Basic Concept

The basic concept of human resources development is to improve worker's vocational ability, strengthen their adaptability necessary for vocations, and help the unemployed smoothly realizing reemployment under the context of changes in industrial structure, advances in technology, and internationalization of economic activities. The staged and systematical development and improvement of human resources throughout the entirely vocational life lays emphasis on worker's career life design.

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[13] In the broadest sense, the relative laws concerning human resources development also include Employment Measures Law, School Education Law, and so on. The contents covered here excluding Human Resources Development Promotion Law are not the main issue of this study. Accordingly, this paper does not mention them.

Human Resources Development Plan

The **Minister of Health, Labour and Welfare** shall formulate a basic plan for the development of human resources (hereinafter referred to as "Basic Plan for Human Resources Development"). Here, the development of human resources covers comprehensive meaning including human resources development, vocational ability test, and development and elevation. The Basic Plan for Human Resources Development shall specify the followings:

(1) The supply-demand trend of labor force, skilled or unskilled;

(2) Target to be attained through development of human resources;

(3) Basic measures to be taken for the development of human resources.

The **prefectural government** shall formulate a basic plan for the development of human resources to be implemented in their prefectures in accordance with the Basic Plan for Human Resources Development mentioned above.

The practicable goals for human resources development shall be set in the Basic Plan for Human Resources Development. The human resources development in long and medium-term period will be operated in line with the Plan.

Human Resources Development operated by Employers, etc

(1) Securing of various opportunities for human resources development

Employers shall pay due consideration to provide their employees with the opportunities to receive various types of human resources development, such as training on and off the job by themselves individually or jointly, or by having them trained at the public human resources development facilities, etc, in order that they may cultivate and elevate their human resources. Employers shall actively execute vocational ability test, and promote the employees taking the test.

In order to promote workers' voluntary and self-initiative development and enhancement of their human resources, employers shall provide necessary aid to secure opportunities for workers to receive educational training or vocational ability test with regard to their vocations. Such aid includes granting paid leave for educational training, long-term educational training leave and other leave; and taking necessary measures, such as changing times for starting and ending work, to secure time for workers to receive educational training or vocational ability test related to their vocations.

(2) Systematic implementation of human resources development

In order to promote the development and enhancement of human resources for employees in a systematic and planned manner, employers shall endeavor to formulate, diffuse, and smoothly implement a comprehensive plan for human resources development, and nominate a staff member to human resources development promoter.

(3) Human resources development promoter

Employers shall endeavor to select and nominate a staff member, who was with the ability to formulate and implement the plan for human resources development, as a human resources development promoter within their enterprises. The human resources development promoter will also extend advices and guidance to employees with respect to the human resources development.

(4) Authorized human resources development

In order to maintain and improve the effect of human resources development provided by non-public facilities, the state has promulgated vocational training standards accordingly. When satisfied the stipulated requirements for human resources development, those organizations and juridical persons, such as employers, employers association, federation of such associations, human resources development organizations, nonprofit organizations and so on, could conduct authorized human resources development.

(5) Aid to employers and other parties concerned

The State and Prefectural authorities endeavor to provide following aid with respect to the human resources development conducted by the employers, etc, for example, to send vocational training instructors, to be entrusted with the execution of partial vocational training, to afford technical assistance for the development and enhancement of human resources, to hold seminars for human resources development promoters, to render services, such as approval of utilizing public human resources development centers, to supply information and materials and so on.

Simultaneously, through above mentioned activities, the government, on the one hand, provides aid to employers undertaking human resources development; on the other hand, extends proper and efficient assistance and aid to secure the opportunities for workers to actively and voluntary receive human resources development. The

government also grants subsidies concerned, for example, paying the wages for leaves which were spent to receive human resources development, so as to incentive enterprises providing assistance and support for employees voluntary conducting human resources development and receiving vocational ability test..

Enforcement of Vocational Training by the State, Prefectures, etc

(1) Public Vocational Training

The types, establishing bodies of facilities for human resources development set up and operated by the State and Prefectural authorities (Public human resources development facilities), and various training activities conducted by those facilities are as follows.

(a)Human Resources Development Center

Human resources development centers are established by prefectural authorities (in the case of municipal authorities to set up such centers, they must consult with and be approved by Minister of Health, Labour and Welfare in advance). These centers provide ordinary courses (aiming to cultivate basic levels of skilled worker with versatile skills) and short-term training course of general vocational training.

(b)Polytechnic College

Polytechnic colleges are established by the State (in the case of prefectural authorities to set up such colleges, they must consult with and be approved by Minister of Health, Labour and Welfare in advance). These colleges offer specialized courses (aiming to foster graduates from high school to be workers with high levels of skills) and short-term specialized courses of advanced vocational training.

(c)Human Resources Development College

Human resources development colleges are established by the State (Employment and Human Resources Development Organization of Japan) (in the case of prefectural authorities to set up such colleges, they must consult with and be approved by Minister of Health, Labour and Welfare in advance). These colleges offer short-term courses and short-term applied courses of advanced vocational training aiming at graduates from specialized courses and short-term specialized courses and employees who are with and equal to the level of applied courses.

(d) Polytechnic Center

Polytechnic centers are established by the State (Employment and Human Resources Development Organization of Japan) (in the case of prefectural authorities to set up such centers, they must consult with and be approved by Minister of Health, Labour and Welfare in advance). These centers offer short-term courses of ordinary vocational training and short-term specialized courses of advanced vocational training.

(e) Human Resources Development Center for the Disabled

Human resources development centers for the disabled are established by the State (in the case of prefectural authorities to set up such centers, they must consult with and be approved by Minister of Health, Labour and Welfare in advance). These centers offer suitable vocational training for disabled persons (including physical and mental disabilities) in a manner appropriate for their ability who feels difficult to receive vocational training at normal facilities.

With regard to the setting up of public vocational training facilities, the Law stipulates that the State shall establish Polytechnic Colleges, Human Resources Development Colleges, Polytechnic Centers and Human Resources Development Centers for the Disabled. The Prefecture shall establish the Human Resources Development Centers. Besides, prefectures may establish a Polytechnic College, Human Resources Development Colleges, Polytechnic Center and Human Resources Development Center for the Disabled. Municipalities may establish a Human Resources Development Center. The responsibilities on establishment of public vocational training facilities at different levels of authorities are demonstrated in Table 3.

Table 3 Responsibilities on Establishment of Public VT Facilities at Various Levels

Levels of Authorities / Public Facilities / Responsibilities	State	Prefecture	Municipalities
Human Resources Development Center		shall	may
Polytechnic Colleges	shall	may	
Human Resources Development colleges	shall	may	
polytechnic Centers	shall	may	
Human Resources Development centers for the disabled	shall	may	

Based on The Japan Institute of Labour (2001), Human Resources Development Promotion Law, pp.18-22

(2)Enforcement of entrusted Vocational Training

With regard to the vocational training conducted in public facilities, if necessary, some of them for job-transfers may entrust private education and training organizations, for example, specialized schools, in order to provide them with rapid and effective vocational training in a flexible manner.

(3)Standards of Vocational Training

As for public human resources development facilities, with a view to keeping or raising the level of such training, the Ordinance of the Ministry of Health, Labor and Welfare specified related curriculums, training hours, equipment or other matters. Such public facilities shall conduct vocational training in conformity with the standards provided by the Ordinance of MHLW.

(4)Polytechnic University

Polytechnic University is established by the state (Employment and Human Resources Development Organization of Japan). The University conducts training for vocational training instructor and improving their abilities. It also carries out such training that contributes to the facilitation of authorized vocational training as well as surveys and studies on the development and improvement of human resources.

(5)Vocational training instructor

The vocational training instructor for public vocational training and authorized vocational training shall hold a license granted by prefectural governors in principle.

(6)Juridical Persons for Vocational Training

A corporation or foundation which carries out authorized vocational training may become a juridical person for vocational training under authorized by the prefectural governor.

(7)Trade Skill Test

The state, represented by Ministry of Health, Labour, Welfare, carries out trade skill test in order to justly and fairly appraise the occupational abilities of workers. Trade skill test is usually classified into the special grade, grade 1, grade 2, grade 3, basic grade 1 and basic grade 2 in every kind of occupations[14]. For some kinds of occupations

[14] In Chapter Ⅲ of Implementing Regulations of the Human Resources Development Promotion

which are inadequately classified into grades, trade skill tests are carried out by single grade. When deemed particularly necessary, Minister of Health, Labour and Welfare may entrust the whole or a part of the business concerning trade skill examinations to the organizations designated in advance.

Those who have successfully passed the trade skill test may be entitled to use the title of certified skilled workers.

3.6.2 Implementing Regulations of Human Resources Development Promotion Law

The Implementing Regulations of the Human Resources Development Promotion Law were set up under the Human Resources Development Promotion Law. The contents of the Regulations comprise promotion of human resources development (covering three sections: actions for the promotion of human resources development, polytechnic university, and vocational training instructor), juridical persons for vocational training, trade skill test, human resources development associations, etc.

The Implementing Regulations stipulate the trainee eligibility, method of executing training, period of training, facilities, number of trainees, trainer-to-trainee ratio, and method of testing for each course. As for the detailed subjects and training hours, what set forth under the Regulations, is only the basic requirements. In other words, it permits flexible vocational training that is adapted the local needs to a certain extent. The training courses stipulated in the Implementing Regulations cover the following (see Table 4).

Table 4 Training Courses of Vocational Training

Type of vocational training	Long-term training course	Short-term training course
Ordinary vocational training	Ordinary course	Short-term course
Advanced vocational training course	Specialized course Applied course	Short-term specialized course Short-term applied course

Source: Implementing Regulations of the Human Resources Development Promotion Law, Chapter 1

Among the long-term training courses, the training program is divided into basic and specialized programs. In the basic program, the trainees are trained with a wide range of basic skills and accompanying knowledge that are universal among different job types. In the specialized program, trainees are trained with specialized skills and knowledge to carry out advanced or diversified tasks that are necessary for technical innovation.

Law, the levels of Trade Skill Test are described as advanced, first-level, second-level, third-level, basic Ⅰ-level and basic Ⅱ-level

As for the short-term training courses, except for those related to qualifications, the Regulations do not specify training standards, namely allow each vocational training facility to flexibly set up training courses that reflect the diversification and advancement in skills as well as local needs.

3.6.3 Vocational Training Standards

Article 19 of the Human Resources Development Promotion Law stipulates that vocational training must be provided in accordance with standards with a view to keeping or raising the quality of vocational training.

The vocational training standards were set up under the Human Resources Development Promotion Law and the Implementing Regulation of the Human Resources Development Promotion Law. The main contents consist of overview of vocational training standards, skills verification, and qualification.

3.7 National Public Vocational Training System

3.7.1 Facilities managed by EHDO

As above mentioned, the most of national public vocational training facilities, excluding those for the disabled, are operated by EHDO. These facilities comprise Polytechnic University, Polytechnic Centers (62 centers), Life-long Human Resources Development Center (Ability Garden), Advanced Polytechnic Center, Polytechnic Colleges (10 colleges), Polytechnic Junior College, Vocational Museum and Prefectural Centers of EHDO (47 centers). In addition, the facilities for the disabled are operated by Japan Organization for Employment of the Elderly and Persons with Disabilities (JEED) (see Chart 2).

Among them, those facilities in which offer training courses for high-level skills include Polytechnic University, Advanced Polytechnic Center, Polytechnic Colleges, and Polytechnic Junior College.

The functions of facilities managed by the EHDO are as follows.

Polytechnic University

Polytechnic University is the sole educational and research institute in Japan. Its main activities include training for vocational training instructor, research and training to improve the quality of vocational training instructor, to develop training materials on relevant training, survey and research on the development and

improvement of vocational ability and international cooperation in the area of vocational training.

It provides long-term courses for high school graduates (four years), research courses for their four-year graduates and persons equivalent to graduates from conventional universities (two years), applied research courses (one year), and specialized courses for enhancing levels of vocational training instructor (six mouths or one year). The courses for bachelor's and master's degrees are offered in Polytechnic University.

Polytechnic Centers

Polytechnic Centers provide a wide range of programs so as to meet various needs for vocational training. Their activities include vocational training for job-seekers and the unemployed. The durations of vocational training are mainly classified as 3 mouths and 6 mouths, and the most of them are provided for 6 mouths.

Life-long Human Resources Development Center (Ability Garden)

The Center conducts surveys and research to develop and enhance improvement in human resources of white-collar workers, and it offers leading and practical training. Its activities include developing training courses relating to white-collar occupations as well as providing vocational training utilizing satellite communications.

Advanced Polytechnic Center

The Center offers human resources development programs related to high level and advanced knowledge and technologies. Its activities mainly include modern, advanced vocational training for mid-level engineers.

Polytechnic Colleges

The Colleges offer applied courses and short-term applied courses in addition to specialized courses and short-term specialized courses.

The specialized courses (two years), same as offered by Polytechnic Junior College, are designed for high-school graduates to develop them to become practical engineers with higher levels of both knowledge and skills. The short-term specialized courses are provided for employees to obtain higher levels of skills and knowledge.

The applied courses (two years) are provided to those persons who have completed specialized courses in order to develop higher level skills and knowledge. The short-time applied courses (at least 60 hours) are offered to employees to obtain higher

levels of specialized and application-oriented skills and knowledge required for their occupations.

Polytechnic Junior College

The College offers specialized courses and short-term specialized courses. The specialized courses (two years), same as offered by Polytechnic Colleges, are designed for high-school graduates to develop them to become practical engineers with higher levels of both knowledge and skills. The graduates may take the opportunity to enter Polytechnic Colleges. Short-term specialized courses are provided for employees to obtain higher levels of skills and knowledge.

Vocational Museum

This Museum was established as a core base for comprehensive career development support aiming at young people. It offers vocational information and experienced opportunities for building their awareness of work and choosing a career to plan their vocational life design. The Museum comprises five zones, i.e. occupation exploration zone, vocational experiencing zone, past and future jobs zone, personal discovery zone, and vocational information zone.

Prefectural Centers of EHDO

The prefectural Centers of EHDO provide all kinds of consultation and support regarding employment, vocational skills development, and grants. Their activities include offering consulting and support on comprehensive employment affairs such as problems related with securing human resources, providing information on employment, and implementing seminars.

3.7.2 National Human Resources Development Centers for the Disabled

The national human resources development centers for the disabled are established by the State, and operated by Japan Organization for Employment of the Elderly and Persons with Disabilities (hereinafter called as “JEED”). These centers conduct suitable vocational training for disabled persons in a manner appropriate for their ability who feel difficult to receive vocational training at normal facilities.

In cooperation with the Ministry of Health, Labour and Welfare and other related organizations, JEED also conducts training activities with a view to fostering employment opportunities for persons with disabilities and supporting their vocational independence among not only employers, but also the general public.

As of 2005, the classification, main body, and number of public facilities of human resources development in Japan are demonstrated in Table 5.

3.8 National Trade Skill Testing and Certification

The National Trade Skill Testing and Certification (hereinafter referred to as NTSTC) is a national test system designed to evaluate and certify the vocational abilities and knowledge of workers under fixed criteria. The objectives of NTSTC are to encourage skilled workers to be in pursuit of a higher degree of expertise and to enhance the public's appreciation for skilled achievement and vocational training, thereby raising both the skills and socio-economic status of workers and contributing to the development of industry. NTSTC is established under the Human Resources Development Promotion Law.

Trade Skill Test plays a large role in the vocational ability development and evaluation of workers. It also contributes to enhance professional consciousness, motivation for skill development and clear educational training targets. Many companies take passing of Trade Skill Test into consideration when making decisions concerning promotion and advancement.

3.8.1 National Trade Skill Testing and Certification System

History of National Trade Skill Testing and Certification

NTSTC started with 5 trades (8 jobs) in 1960 under the old Vocational Training Law (1958, Law No. 133). In 1985, a part of Vocational Training Law was revised and changed the name as the Human Resources Development Promotion Law, aiming at the overall promotion and development of workers' vocational ability throughout their working stages. Further, the trades were rearranged and unified according to the changing needs of workplaces. In 1988, the special grade was established above grade 1. In 1993, grade 3 and basic grades 1 and 2 were added under grade 2.

Table 5 Overview of Public Human Resources Development Facilities

Classification	Overview	Main body	Number of facilities
Human resources development centers	Facilities for comprehensive vocational training for unemployment job-seekers, current workers, graduates, etc.	Prefectures	186 1
Polytechnic junior colleges	Facilities for advanced vocational training for senior high school graduates, current workers, etc.	Independent administrative organization Employment and Human Resources Development Organization of Japan Prefectures	1 9
Polytechnic colleges	Facilities to pioneer advanced vocational training for senior high school graduates and workers	Independent administrative organization Employment and Human Resources Development Organization of Japan	10
Polytechnic centers	Facilities for short-term vocational training for unemployment job-seekers and workers	Independent administrative organization Employment and Human Resources Development Organization of Japan	62
Human resources development centers for the disabled	Facilities for special vocational training for the disabled	National government Prefectures	13 6
Total			288

Polytechnic University	Facilities for vocational training instructor training and to pioneer advanced vocational training	Independent administrative organization Employment and Human Resources Development Organization of Japan	1

Source: Human Resources Development Administration in Japan (2005 Edition), Human Resources Development Bureau, Ministry of Health, Labour and Welfare, p.22

Trades and Grades

(a) Trades

The trades covered by NTSTC are decided in the order of priority under taking the needs of public welfare and national economic situation, the number of workers in the subject trade, and the education/ training situation into overall consideration. As of August 2002, the number of trades covered in the system was extended to 137 (See Appendix Table). Among them, the tests for 129 trades are now conducted by prefectural governors. Other tests for 8 trades are conducted by designated testing agencies[15].

(b) Grades

The grades in Trade Skill Test System are classified into the special grade, grades 1 and 2 and 3, while others are not classified into grades (single grade). The skills required for grades are as follows:

Special grade:	Skills required for managers
Grade 1 and non-classified grade:	Skills required for advanced skilled workers
Grade 2:	Skills required for intermediate skilled workers
Grade 3:	Skills required for novice workers

In addition, there are other grades such as basic grade 1 and basic grade 2 which are for foreigners.

Organizations Administering the Test

The Ministry of Health, Labour and Welfare (MHLW), Prefectural governments, Japan Vocational Ability Development Association (JAVADA), and Prefectural Vocational Ability Development Associations (hereinafter referred to as PVADAs) work together to conduct trade skill testing and certification.

Trade Skill Test is held under the authority of the MHLW. The Minister is responsible for the setting of test criteria and implementing test plans, etc.

The prefectural governments are entrusted with the duties of implementing Trade Skill Test in accordance with the implementation plans drawn up by the Minister of MHLW.

Further, JAVADA is entrusted with the duties centered on the making test questions (both theoretical and practical).

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[15] See: Pamphlet of Japan Vocational Ability Development Association, p.9

PVADAs are responsible for accepting applications and implementing the tests.

Conducting Skill Tests

Trade Skill Test covers two areas: practical skill tests and written tests for each trade. The practical skill test is carried out mainly by actual work test, normally lasts 4 to 5 hours. The theoretical tests (also called as written tests) are conducted mainly to evaluate the possession of proper ability and knowledge necessary for accomplishing the work, not merely for checking academic knowledge. The written test is carried out on the same day nationwide, excluding the basic 1st and 2nd grades for foreigners, and lasts 2 hours.

Workers Who Have Passed Trade Skill Test

(a) Certificates and “Certified Skilled Worker” Title

Those who have passed Trade Skill Test are entitled to the certified skilled workers. The certificate confers the right to use the title of “Certified Skilled Worker”.

(b) Certified Skilled Worker Badge

The Minister of MHLW provides the Certified Skilled Worker Badge for those who have passed Trade Skill Test so that they can pride themselves on as the certified skilled worker. At the same time, the Badge is also aimed at raising public climate to evaluate and respect the certified skilled workers properly.

Authorization System of Accredited Skill Test

The Authorization System of Accredited Skill Test was inaugurated in 1973. The system is complementary to NTSTC. The organizations authorized by the Minister of MHLW examine and certify workers' knowledge and skills of the trades that aren't covered by NTSTC. The background of establishing the system is that NTSTC is not necessarily the most appropriate evaluation method as regards the number of trades for workers, regions of implementation, scope of trades and so on. It is necessary to encourage the private sectors to construct trade skill evaluation mechanisms.

Authorization System of Accredited In-house Skill Test

The Authorization System of Accredited In-house Skill Test was inaugurated in December 1984. The tests are conducted by business owners/owner groups or federations to evaluate their employees. The objectives of the system are to develop and improve vocational ability of workers and improve their socio-economic position.

3.8.2 Other Tests and Examinations

Apart from the said National Trade Skill Testing, JAVADA have also developed the following special tests and examinations.

Business career development system

The Business Career Development System was established to support office workers to systematically and gradually acquire and evaluate professional knowledge and skill related to their jobs.

The structure of Business Career Development System includes three components: plan, do and check. “Plan” means setting targets by utilizing the vocational ability development standards. “Do” means worker learning an accredited course. “Check” is learning outcome evaluation via the business career development test.

The Business Career Development Test is conducted in accordance with the relevant Ordinance of MHLW instead of notional law. It comprises the business career development unit test (business career development system completion test) and the business career development mastery test (vocational ability assessment test for office workers). The degrees are divided into three levels: basic-level, intermediate-level, and instructor or expert-level (for managers, leaders) (see Table 6).

Table 6 Contents and Levels covered by Business Career Development Test

	Mastery Test (vocational ability assessment test for office workers)	**Unit Test** (business career development system completion test)	
Contents	Practical planning and application abilities based on learned knowledge in the accredited courses are evaluated	Learning levels in the accredited courses are accredited by MHLW	
Levels	**Managers, leaders** Anyone (with 7 to 10 years work experience or its equivalent)	**Basic** Person who completed the accredited course or 3+ years work experience	**Intermediate** Person who completed the accredited course or 5+ years work experience

Source: Pamphlet of Japan Vocational Ability Development Association, p.8

YES-Program

The Youth Employability Support Program (abbreviated as YES-Program) was designed by the MHLW to help the youth acquire fundamental skills such as communication abilities, business worker awareness, fundamental academic

achievement, and business etiquette. After the youth complete a course accredited by the MHLW in their professional field or pass a relevant test, they are given a Youth Employability Support Program Mastery Certification. JAVADA provides business career entry test according to the YES-program.

Computer Services Skills Evaluation Test

The Computer Services Skills Evaluation Test is for people who are interested in learning computer operation in education and training facilities, business offices and workers wishing to enhance their computer skills. It started in 1983, possessing a long history. Recent years, the number of applicants has been rapidly increased in approximately averaging 100,000 applicants per year.

The practical grades of the test are set by 1st grade, 2nd grade, and 3rd grade. Such tests are able to evaluate knowledge and skills connected to actual operations in workplace. These test certifications can prove one's own computer abilities, help him/her applying for a job or doing well in current workplace.

CAD Tracing Specialist Skill Examination

The CAD Tracing Specialist Skills Examination is approved by MHLW, and it started in 1997. It is mainly for persons who make drawings using CAD on vocational training facilities and workplaces and those with a desire to evaluate CAD drawing abilities in two sectors of Building and Machinery. The level covered by the examination is divided into three grades: advanced, intermediate, and primary. The test contents include a practical skills test and the theoretical test, respectively focused on actual drawing ability and drawing knowledge.

3.8.3 Vocational Ability Evaluation Standards

With the cooperation of industrial organizations, JAVADA sets vocational ability evaluation standards by trade/ industry as the criteria to properly evaluate the vocational abilities of workers by establishing comprehensive vocational ability evaluation system.

Such standards are beneficial to workers, companies, national and private labor supply-demand regulating agencies. Firstly, for workers, these standards provide objective assessment criteria of an individual's ability, help individual's career-target setting and career development. Secondly, for companies, these standards provide clarification of required human resources, facilitate the planning and implement of

human resources strategy, and help personnel review and ability-based compensation. Thirdly, national and private labor supply-demand regulating agencies can develop and utilize ability evaluation tools, make the labor supply-demand proper matching, and develop training curriculums in line with these standards.

As of June 2005, 23 standards were set and 10 standards are scheduled to be established.

3.9 Governmental Roles in Vocational Training

The Japanese government plays mainly following roles in vocational training: (a) legislating relevant laws, regulations; (b) establishing and administrating public vocational training facilities; (c) establishing trade skill test system; and (d) setting up standards on Off-JT courses and subsidization of private courses which meet the standards.

Relevant Laws, Regulations

It was only in the late 1930s that the government launched a program to promote the establishment of in-house training facilities in private industry. This is much later than the date by which Off-JT had already been well developed by private industry. The government was motivated by the urgent need to increase the number of skilled workers so as to enlarge the production of munitions for the war against China, and subsequently for World War Ⅱ[16].

Currently, Japanese government enacted and has been enforcing a comprehensively law and regulations in human resources development, namely Human Resources Development Promotion Law and Implementing Regulations of the Human Resources Development Promotion Law.

Public Vocational Training Facilities

The government sponsors to establish and administrate public vocational training facilities. Such public facilities comprise Polytechnic University, Polytechnic Centers, Life-long Human Resources Development Center, Advanced Polytechnic Center, Polytechnic Colleges, Polytechnic Junior College, Vocational Museum and Prefectural Centers. They are operated by the Employment and Human Resources Development Organization of Japan (EHDO). Moreover, the State also establishes the national

[16] Sources: Kazuo Koike (1997), Human Resources Development, The Japan Institute of Labour, p.117

human resources development centers for the disabled, and they are operated by the Japan Organization for Employment of the Elderly and Persons with Disabilities (JEED).

Trade Skill Test System

The National trade skill test system was established in 1960 under the old Vocational Training Law, started with 5 trades (8 jobs). Since then, with the revising of Vocational Training Law and the renaming to Human Resources Development Promotion Law, the number of trades and grades covered in the system has been enlarged gradually. As of August 2002, the number of trades is extended to 137; and the grades are classified into the special grade, grades 1 and 2 and 3, basic grade 1 and basic grade 2, while some of them are not classified into grades (single grade).

Standards in Off-JT Courses and Subsidization of Private Courses

The MHLW has formulated the Vocational Training Standards according as the Ordinance of the Ministry of Health, Labour and Welfare. The contents of these standards cover subjects, curriculums, duration, and hours of vocational training.

In order to promote the education and training in private sectors, the Career Development Promotion Grants were established, with the financial resources from employment insurance funds. Employers will be subsidized to cover part of the wages and expenses when they created a plan, and conducted educational and training activities for their employees based on the plan. Such grants comprise[17]:

(a) Training benefits. Amount of grants covers training expenses and 1/4 of wages while in training (1/3 at medium- sized and small enterprises).

(b) Incentive money for introduction of a human resources development vocation system. Amount of grants covers enrollment fee for education and training or registration fee for vocational ability examination, as well as 1/4 of wages during that period (1/3 at medium- sized and small enterprises).

(c) Reward of a long-term education and training vacation system. Amount of grants covers: 1) 300,000 yen for introduction of long-term education and training vacation system; 2) 150,000 yen for introduction of a periodic vacation system; and 3) 50,000 yen

[17] Sources: The Japan Institute for Labour Policy and Training (2006), Labor Situation in Japan and Analysis: General Overview 2006/2007, pp.112-113
http://www.jil.go.jp/english/laborinfo/library/documents/Labor2006_2007.pdf

for each person who takes a vacation.

(d) Incentive money for promotion of vocational ability evaluation. Amount of grants covers registration fee for vocational ability examination, as well as 3/4 of wags while taking the exam.

In Kazuo Koike's opinion, OJT is regarded as the main method of human resources development. However, it is clear that the government cannot play the major role (Kazuo Koike, 1997, p.68). Nonetheless, the governmental roles in human resources development cannot be denied, especially for small firms which are difficult to conduct vocational training by themselves.

As a whole, public vocational training[18] sponsored by government and those within enterprises complement each other. Such complementary relationship makes the human resources development, including fostering high level skilled workers, more efficient and meets various needs of, either larger enterprises or medium-sized and small companies, also either new entrants to labor market, employees, or job transfers.

3.10 Within-enterprise Vocational Training

The Japanese government encourages enterprises to carry out human resources development by themselves in various ways. As stipulated in Article 4 of the Human Resources Development Promotion Law, the employer shall provide his employees with necessary vocational training, extend necessary aid and otherwise secure opportunities for workers to receive on their own educational training or vocational testing with regard to their vocations and endeavor to promote development and enhancement of the employee's human resources by extending necessary aid in order that they may take human resources development and vocational ability test, etc..

3.10.1 Feature of within-enterprise Vocational Training

As above mentioned, the lion's share of Japanese vocational training is provided by industry itself. The vocational training system within industry is very complex one and not easily comprehended by the outsider[19]. However, there are some following general features.

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[18] Here is referred to public vocational training in broad sense, namely including vocational training conducted at public human resources development facilities and those that educational and training expenses are defrayed by government in the manners of subsidies and grants.

[19] See: Leonard Cantor (1989), Vocational Education and Training in the Developed World, A Comparative Study, Routledge, London and New York, p.25

First, a conception described as “skill formation” is employed, and it embraces the ideas of education, training, experience and personal development. They combine “off-the-job” formal training with “on-the-job-training” (Leonard Cantor, 1989, p.26).

Secondly, training for employees is taken as a prime responsibility of the company. The results of training, including skills, knowledge, and experiences, are considered as a corporate asset instead of the individual trainee's asset. Thus, the investment in vocational training is multiplied, especially in those companies where long-term employment system is introduced.

Thirdly, under the rapidly changing context, most companies provide various training schemes in order to make employees versatile. Consequently, the training is continuous and long-term. Meanwhile, internal transfer from one job to another could help employees to accumulate more technical experiences at different work units.

Finally, training-within-enterprise program, with the usual characteristics of hiring new school graduates, developing “key” workmen, and providing lifelong employment guarantees, annual wage increments based on length of service, welfare benefits, and early retirement, reflected the need for an immediate supply of specifically trained worker (Solomon B. Levine and Hisashi Kawada, 1980, pp.280-281).

3.10.2 Outline of within-enterprise Training

Historically, large modern industries in Japan prefer to rely upon within-enterprise vocational training instead of outside facilities (including public and private ones) to develop and elevate the level of employees' skills.

There is a fact in Japan that the skilled worker is expected not only to develop expertise in one skill, but also to be both adaptable and flexible in his attitude and multi-skills in order to contribute fully to his company. For this reason, Japanese industry provides both initial and retraining programs. This combination of training and social attitudes among employees, which has deeply historical roots, results in homogeneous corporate climate which often reaches religious or spiritual intensity (Leonard Cantor, 1989, p.5).

The majority of employers provide employees training for newly recruited school graduates each year. For the new recruits, there will be an initially orientation training. After initial orientation, the new employees usually receive a basic technical training according to their educational background and the concrete situation of company's business. Sizable manufacturing companies train their technical high school graduates

in their own training centers or workshops. Small enterprises rely further on their parent companies, the local trade association related to their business, and training institutes (including public and private ones). Different kinds of employees may get different training according to their needs.

Japanese industry has been continually introduced a major program of retraining, and it has become quite common to move technicians from mechanical engineering to electronic engineering, hardware technicians to software, and blue-collar workers to white-collar employment (Leonard Cantor, 1989, p.27).

3.10.3 Types of within-enterprise Vocational Training

There will be differently classified ways in accordance with the different criteria of within-enterprise vocational training. During this study, the following types are mainly learned for the skill formation of skilled workers in Japanese industries, namely on-the-job training (OJT) and off-the-job training (Off-JT).

Nowadays, for developing workers' skills, the means of broad OJT, supplemented with short, inserted Off-JT are widely employed in Japanese companies (Kazuo Koike, 1997).

On-the-Job Training (OJT)

OJT is "invisible", and it is inseparable from work activity in terms of its location, timing, instructor training, and training costs (Kazuo Koike, 1997, p.1). The most crucial feature of the Japanese human resources development system is skill development over the long term, so OJT plays more important role in skill formation of Japanese skilled workers.

OJT can be divided into formal and informal type. Formal OJT usually refers to assigning instructors and setting training schedule to employees to be trained, and setting evaluation standards in advance.

OJT has two main features: one is the significant role played by the supervisor or foreman who is expected to perform a training function as part of his job, and the other is the universal utilization of training techniques developed by Japanese companies such as group working and multi-skilled work targeting. Group working is designed to facilitate the exchange of ideas and information among small group of workers, and it has been adopted by using the "key worker" who received highly-training as the disseminator of knowledge and new techniques. Multi-skilled work targeting aims to avoid narrow specialization and to increase workers' desire to learn more.

In Japanese long-term employment system, many workers are expected to upgrade their skills. The emergence of career ladder make the skill development more clear, and such ladder leads workers to acquire and gradually upgrade a high level skills over the long term. To achieve such goal, OJT may be the more efficient and most saving-cost approach. A worker can improve his skills while on the work.

Over the long-term job career, broad experiences of the mechanism of production are necessary for skilled workers to improve productivity. Except for career ladder, job rotation system in various forms is another way to acquire broad experiences. New graduates are typically trained by experiencing different types of work in several departments within a company or corporate. Such rotation make most graduates become more versatile workers. On contemporary production workshops in Japan, a regular rotation of short intervals, say two or three months, seems more common (Kazuo Koike, 1997, p.18).

Off-the-job Training (Off-JT)

Before the World War Ⅰ, "factory apprenticeship" was the main mean to train skilled workers in Japan. Formal Off-JT emerged around the time of World War Ⅰin the largest firms in heavy industries, such as ship-building, steel and machinery. The earliest examples are Yawata Steel (now Nippon Steel) and Hitachi, both of them started in-house Off-JT courses in 1910. These formal Off-JT courses were offered in regular training period, usually from 3 to 4 years, at training institutions off the shop-floor, and was sandwiched with work: a few hours in a day or a couple of days in a week.

In-house Off-JT courses rapidly developed during the inter-war period. In that time, there was a tendency to weight more full-time study, for example, the first two years were fully devoted to Off-JT courses and only the final year was assigned to work in various workshops. The diffusion rate became remarkably high.

(1)Long-term in-house Off-JT

After the World War Ⅱ, Off-JT courses were enlarged, both in their content and length of duration. Large corporations extended many of their courses to three or four years, and half of the curriculum was devoted to general education, including English, Mathematics and Japanese, similar to that taught in non-vocational upper secondary schools.

(2)Decline of long-term Off-JT

The number of long-term Off-JT courses in large corporations started to decline after the early 1960s because of the following reasons.

Firstly, the major reason was mostly due to the remarkable diffusion of upper secondary education from the tenth to the twelfth grade (15 to 18 years of age) (Kazuo Koike, 1997, p.114). Such widespread diffusion made it more difficult to recruit promising applicants with a high aptitude among those graduates only from lower secondary education. Under such situation, large corporations shortened the period of most in-house courses from three or four years to just one year.

Secondly, there was an external condition, i.e. the labor shortage. Such shortage of labor force decreased the possibility that management voluntarily offered their young workers off production for one-year Off-JT courses. Consequently, most of young workers were assigned to actual production forefront after short orientation courses of only lasting several weeks.

Thirdly, the long-term Off-JT courses might not believe to be the perquisite for intellectual skills formation.

3.10.4 Appropriate Incentive System for within-enterprise Vocational Training

In order to promote skill development and elevation, efficient incentives are essential. One method to ensure appropriate incentives is: a fair assessment of levels of skills combined with a fair compensation based on the result of the assessment.

A Typical Assessment Method: Job Chart

The levels of skills, especially higher skills, are not easy to fairly assess. A common way to identify the individual's skill level is to utilize a job chart (Kazuo Kokei, 1997, p.79). The concrete style of the chart should be devised according to the particular character of each workshop. A simplified example is depicted as Table 7. The rows list the job titles and unusual operations in the workshop, and the columns list the names of the workshop members.

Such job charts can indicate the differences in the level of skills, including the breadth and depth of the skills. The foreman of the workshop writes and amends the chart at certain intervals.

Mass production workshops tend more frequently to adopt job charts, because the breadth of capability for different jobs is more easily identified in the movement between positions within a workshop (Kazuo Koike, 1997, p.80).

Table 7 Job Chart

Name	Usual operations			Usual operations[20]	
	Job1	Job2	Job3	Problem handing 1	Problem handing 2
A	＊＊＊	＊＊	＊＊	＊＊＊	＊＊＊
B	＊＊	＊＊	＊＊＊	＊＊	＊＊
C	＊	--	＊	--	--
D	＊	＊＊	＊＊＊	＊	＊＊＊

Note: ＊＊＊ able to teach fellow workers how to perform operations
＊＊ able to perform operations without any help
＊ having received instructions on the job

Source: Kazuo Kokei, 1997, Human Resource Development, The Japan Institute of Labour, p.80

A Relative Fairly Compensation System: Pay-for-job-grade System

Pay-for-skills or pay-for-job-grade wage systems can reflect both the breadth of experience and problem-handling capability, and such breath and capability should be the basis of wage-deciding system. An assessment of the breadth of experience and problem-handling capability depends on reliable job chart (also called as “job map”) being drawn up on the shop-floor.

Pay-for-job-grade systems usually take the form of ranges for each wage rate. They are effective in encouraging workers to develop their skills while staying on the same job. In addition, individual pay will increase through yearly increments, which motivates workers to remain within the firm, thus promoting skill development. Yearly increments are usually accompanied with a merit rating, which embodies the difference in the level of skill development between individuals. A long-term expectation of employment also promotes both labor and management to invest in human capital to develop skills to some extent.

3.10.5 An Advantageous Environment: Long-term Employment System

In Japanese companies, especially large corporations, there are few employees who change their jobs, and most people work at same company for a long period of time. The

[20] In the original of this monograph, “usual operation” was utilized here. But, from the text of reciprocal second paragraph in p.79, we can draw on that the meaning should be “unusual operations”. So, this maybe is a mistake.

long-term employment system in these companies is referred to as the lifetime employment system. The lifetime employment system is an employment practice where companies hire a specific number of new graduates at fixed times every year, employees continue to be employed at the same company or affiliated companies from the time that they are hired as new graduates to the time of they retire, as long as there are no extraordinary circumstances such as a management crisis[21].

Under the context of long-term employment system, employees are trained through in-company capacity development, and their wage increases are based on seniority. Such system facilities human resources development for a long period of time within the same company, and help to build up and develop workers' skills. The long-term employment system is especially fit for manufacturing industries, because over the long-term job career, broad experiences of the mechanism of production are necessary to improve productivity.

The long-term employment system was established at many companies during the period of high economic growth of the 1960s. With the rapid changes in technological innovations since that time, large companies were not able to hire sufficient experienced workers from outside labor market, and they needed to arm their employees with a high level of broad skills and techniques through their own vocational training. The lifetime employment system combines long-term employment with the continued wage increase and promotion. Such system emphasizes job security, and facilitates intensive investment in skill formation and development for both companies and individual workers.

Nevertheless, under the context of concrete economic situation and information technology, the lifetime employment system and seniority-based wage system encounters some arguments. Many companies are readjusting their inside personnel management system, such as to consecutively carry out reforms regarding seniority-based wages, to restrict the number of regular staffs that subject to lifetime employment, and to increase the number of non-regular staffs.

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[21] The Japan Institute for Labour Policy and Training (2006), Labor Situation in Japan and Analysis: General Overview 2006/2007, p.33
http://www.jil.go.jp/english/laborinfo/library/documents/Labor2006_2007.pdf

3.10.6 Typical Cases

Box1 **Hitachi**

Hitachi has no fewer than five training institutions of their own: the Hitachi Institute of Technology, in Hitachi city; two Hitachi Technical Colleges, one at Keilin, near Yokohama, and the other in Hitachi City; a productivity training center, wholly devoted to training staff in methods of increasing productivity, and the Hitachi Comprehensive Management Research Center, also in Hitachi City.

At the Keilin technical college, for example, the company runs initial training courses of fifteen months duration in electronics engineering and software engineering for newly-recruited blue-collar and white-collar workers, drawn straight from senior high school and university respectively, at ages 18 and 22, while at the Management Research Center, special emphasis is placed on the training of executives at all levels of the Hitachi group companies.

Source: Leonard Cantor (1989), Vocational Education and Training in the Developed World, A Comparative Study, Routledge, London and New York, p.26

Box2 **Toyota**

The Toyota philosophy of education and training, which they regard as inseparable, sees on-the-job training as the most important aspect, designed to develop abilities through daily work under the direction of supervisors, supplemented by both 'formal' and 'informal' education. For its 45,000 employees, made up of 10,000 office workers and engineers and 35,000 blue-collar workers, Toyota has a training staff of 130 providing a variety of training programs. For example, new male employees in their first year are provided with a seven-month program which includes talks by top management staff on the history and philosophy of the company; three months working in factories to learn through participation how the production line works for manufacturing cars; and three months sales experience with large private dealers throughout Japan. In addition, Toyota provides a wide variety of training programs at various supervisory and management levels.

Source: Thomas Rohlen and Chris Bjork (1998), Education and Training in Japan, Volume Ⅲ, Routledge, Simultaneously published in the USA and Canada, p.72

Original Source: Leonard Cantor (1985), Vocational education and training The Japanese approach, Comparative Education, vol.21, no.1

Box3 Canon Corporation

At Canon, much training and development takes place in a very systematic fashion related to the Job Qualification System. It is characterized by extensive in-company training and transfer.

In-company Training

Many training programs set forth the very standards for upgrading of qualification. Training starts with the newly employed high school graduates, who receive intensive training for 240 days at the Canon Technical Institute. In addition to un-programmed on-the-job training (OJT) and self-development, very common in Japanese industry, Canon offers a number of training programs that are categorized by all-company training, training by function, training by plant/office, and development of trainers. Between 1967 and 1971, Canon institutionalized many programs related to the Job Qualification System. Between 1972 and 1985, more were added to reflect overseas expansion. Most programs are conducted in the form of "stay in together" (all the participants staying together overnight).

Transfers

For management, the purpose of the Transfer and Development System (literally translated as "declaration system", meaning "self-assessment system") is to place the right man in the right position, and to stimulate communication between the applicant and his superior in order to foster development of ability. For the employee, it provides an opportunity to express a wish or another job that he or she feels to be more suitable.

There are two kinds of application, "periodic" and "at random". The periodic application is, in principle, made by any employee who applies between September and October for the promotional examination to the level of chief clerk 1, engineer 1, or assistant manager 1. At-random application can be submitted any time. Applications must be in writing and follow designated channels.

Source: Hideo Inohara (1990), *Human Resource Development in Japanese Companies*, Asian Productivity Organization, Tokyo, p.207-209

3.11 Features of HRD at present

Currently, the distinguishing features of HRD in Japan are as follows: (1) informal OJT performs a considerably greater role than formal OJT; (2) a long-term informal OJT is indispensable for employees to acquire high-level skills. Some of the principle forms of informal OJT include gradual progression of work experiences, a rotation

system and serve in a variety of positions. Long-term OJT gives workers the opportunity to gain broad skills; (3) long-term informal OJT is implemented in large companies in a wide and organized manner. While in most small- and medium- sized companies, they implement OJT in a manner of senior workers giving guidance to junior workers; and (4) Off-JT is being implemented in between the OJT. Workers deem to organize and systematize the OJT experiences through Off-JT and acquire the knowledge and theoretical skills necessary for handing issues in practical business affairs[22].

Summary

After examined the history and current experiences of vocational training in Japan, The following can be found.

(1) The emergence of within-enterprise vocational training was much earlier than the establishment of public vocational training. In the period of immediate postwar, there emerged public institution as a measure to relief unemployment. The vocational training from 1945 to 1958 mainly comprised two training systems, namely one was job training (職業補導) based on the Employment Security Law of 1947, and the other was training for skilled workers (技能者の養成) under the Labor Standard Law of 1947. The enactment of the Vocational Training Law in 1958 and the rename to Human Resources Development Promotion Law in 1985 instituted the legal foundation to conduct vocational training.

(2) The state has enacted a special law, original named as Vocational Training Law, renamed as Human Resources Development Promotion Law in 1985. Accordingly, the emphasis of vocational ability development has been moved from fostering skilled workers aiming at secondary industry to overall human resources development during the labor force' career life-time. The government has gradually revised the law in line with the changing context of socioeconomic situation, technological innovation, and globalization of economic activities.

(3) A high centralized system on public vocational training was established after the World War Ⅱ. The government has invested vastly in public vocational training facilities, and now such facilities include Polytechnic University, Polytechnic Centers,

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[22] The Japan Institute for Labour Policy and Training (2006), Labor Situation in Japan and Analysis: General Overview 2006/2007, p.54
http://www.jil.go.jp/english/laborinfo/library/documents/Labor2006_2007.pdf

Life-long Human Resources Development Center, Advanced Polytechnic Center, Polytechnic Colleges, Polytechnic Junior College, Vocational Museum and Prefectural Centers, as well as Human Resources Development Centers for the Disabled. The system covers various targeting group from school graduates, job seekers, employees, white-collar workers, to employers and so on.

(4) The public vocational training sponsored by the government and within-enterprise vocational training complement each other. The lion's share of vocational training remains the provision of those within enterprises, or said to within industries.

(5) With respect to fostering high-level skilled workers, the main way is on-the-job training (OJT), especially informal OJT, in large companies. The principle forms of informal OJT include gradual progression of work experiences, a rotation system and serve in a variety of positions. Off-job training (Off-JT) is being implemented in between the OJT. In the public vocational training system, some courses, such as specialized courses and applied courses, play a role in fostering high skilled workers to some extent, especially for small- and medium-sized enterprises.

(6) The training for vocational training instructor is exclusively offered by Polytechnic University. The graduates of it will work as vocational training instructors at public human resources development facilities as well as in private companies.

(7) The state has established a National Trade Skill Test System for a long history under the Human Resources Development Promotion law (original named as Vocational Training Law), and encourages to develop the comprehensive vocational ability evaluation system, so as to raise the social recognition, the respect for vocational skills, and the socio-economic status of skilled workers.

This system started with 5 trades (8 jobs) in 1960 under the old Vocational Training Law of 1958. After the revision and rename of the law in 1985, namely Human Resources Development Promotion Law, the trades were rearranged and unified. As of August 2002, the number of trades covered in the system was extended to 137. The grades are classified into the special grade, grades 1 and 2 and 3, and basic grades 1 and 2, while others are not classified into grades (single grade). Among them, the basic grade 1 and basic grade 2 are for foreigners.

The Authorization System of Accredited Skill Test (started in 1973) and the Authorization System of Accredited In-house Skill Test (started in 1984) play the complementary roles to the national system. In addition, two special test and

examination, i.e. the Computer Services Skills Evaluation Test (started in 1982) and the CAD Tracing Specialist Skills Examination (started in 1997), has been holding, under approved by the Ministry of Health, Labour and Welfare.

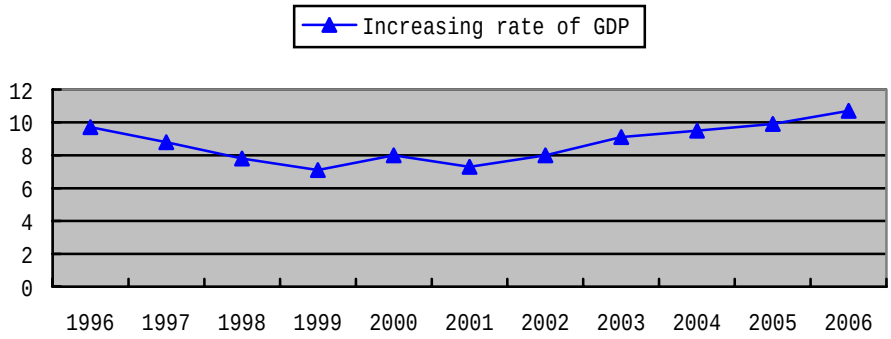
With the cooperation of industrial organizations, JAVADA sets vocational ability standards by trade/ industry as competence evaluation criteria. Up to 2005, 23 standards were set and 10 standards are scheduled to be established.

4. Chinese Experiences

4.1 Outline of Chinese Labor Market

China is the biggest developing country in the world. Since its pursuance of economic reform and open-up policy in late 1970s, its national economy has witnessed a sound, sustainable, and rapid growth. According to the statistics of National Bureau of Statistics (NBS) in 2006, Gross Domestic Product (GDP) in China reached 20.94 trillion Yuan ($2.68 trillion), with an increase of 10.7 percent than in 2005. In the last ten years, Chinese GDP has been increased by an annually average rate over 8.5 percent in a sustainable and stable manner (see Chart 3). Its economy has become the fourth biggest power in the world.

Chart 3 Increasing Rate of GDP from 1996 to 2006



Source: (1) The figures from 1996 to 2005 were from the National Economy and Social Development Statistical Bulletin, National Bureau of Statistics of China
(2) The figure in 2006 was from "Xie Fuzhan, Commissioner of the National Bureau of Statistics of China briefs the media on China's economy in 2006 at a press conference hosted by the State Council Information Office on January 25, 2007, [china.com.cn]" http://www.chinadaily.com.cn/china/2007-01/26/content_793128.htm

China is also the most populous country possessing tremendous workforces in the

world. Up to the end of 2005, the total population of China reached 1.30756 billion (excluding Hong Kong Special Administrative Region, Macao Special Administrative Region and Taiwan Province)[23].

The total urban and rural employed population reached 758.25 million, of which the urban employed population was 273.31 million, and the rural employed population was 484.94 million. The annual growth of the new entrants to labor market reaches 10 million. There are over 150 million workforces migrating from rural to urban areas for employment.

With the adjustment of industrial structure and the acceleration of urbanization, the composition of employment in primary, secondary, and tertiary industries has changed accordingly. During the period of 1978 to 2005, the proportion of persons employed in tertiary industry rose steadily from 12.2 percent to 31.4 percent; the proportion in secondary industry rose slightly from 17.3 percent to 23.8 percent; and those in primary industries dropped from 70.5 percent to 44.8 percent. The trends of composition of employment by industries from 1978 to 2005 are demonstrated in Chart 4.

By the end of 2005, the registered unemployment population in urban areas reached 8.39 million, and the registered unemployment rate in the urban areas was 4.2 percent.

Nevertheless, going with the economic growth, some factors, such as the adjustment of industrial structure, the acceleration of urbanization, the technological innovation, and the globalization of economic activities, have caused a number of troublesome issues in Chinese internal labor market. The most prominent one of them is the shortage of high-level skilled workers who are the essential foundation to support economic development.

According to a sample survey among more than 2000 enterprises in manufacturing industries, conducted by the Ministry of Labour and Social Security, focused on making clear the current situation of workers' quality, the findings indicated that the following issues are common, such as the skill levels of workers are somewhat low, the skill structure was unreasonable for post requirements, the number of high skilled workers, especially technicians and senior technicians was short, the age of skilled workers was universal elder and so on. Moreover, the number of skilled workers among some old industrial bases was serious shortage.

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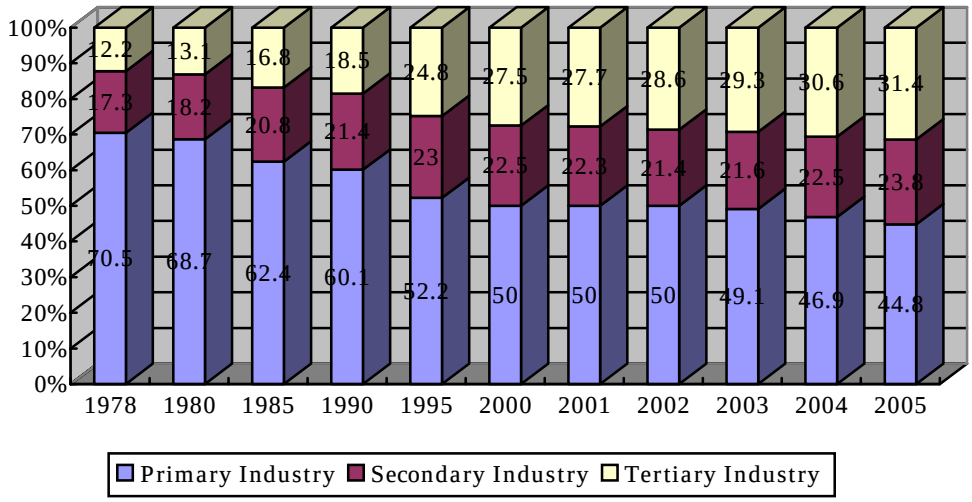
[23] Sources: China Statistical Yearbook (2006), Compiled by National Bureau of Statistics of China

Chart 4 Trends of Composition of Employment by Industries



Source: (1) China Labour Statistics Yearbook (2005), Compiled by National Bureau of Statistics and Ministry of Labour and Social Security, P.R.C

(2) The figure in 2005 was based on China Statistical Yearbook (2006), complied by National Bureau of Statistics of China

Notes: (1) Primary industry means Farming, Forestry, Animal Husbandry and Fishing.

(2) Secondary industry means Mining, Manufacturing, Production and Supply of Electricity, Gas and Water, and construction.

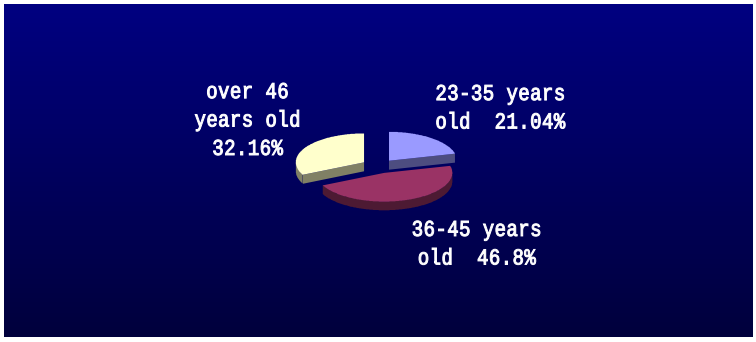
(3) Tertiary industry means industries other than above.

Based on above mentioned sample survey, we take the ages for an example. Among the technicians, the number of them who were in ages between 23 years old and 35 years old accounted for 21.04 percent; those between 36 years old and 45 years old accounted for 46.80 percent; and those over 46 years old accounted for 32.16 percent. Among the senior technicians, the number of them who were in ages between 23 years old and 35 years old accounted for 19.28 percent; those between 36 years old and 45 years old accounted for 38.82 percent; and those over 46 years old accounted for 41.79 percent (see Chart 5).

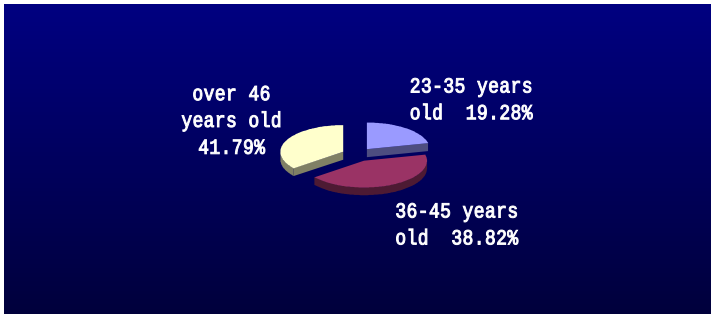
Furthermore, according to a estimation made by the Ministry of Labour and Social Security, the number of skilled workers reached round 70 million at present. Among them, the number of workers with elementary-level skills reached round 42 million, and it accounted for 60 percent of total skilled workers; those with secondary-level skills reached round 25.2 million, accounted for 36 percent; and those with high-level skills, covering advanced-level skilled workers, technicians and senior technicians, reached only 2.8 million, accounted for only 4 percent (see Chart 6).

Chart 5 Age Structure of Technicians and Senior Technicians

(Technicians)

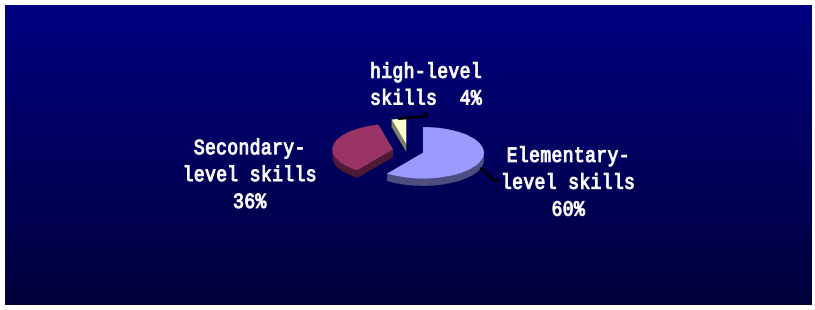


(Senior Technicians)



Sources: BI Jieli (2005), Research and Practice on Development of High Skilled Talents[24], p.5

Chart 6 Proportion of Skilled Workers with Different Levels of Skills



Sources: Bi Jieli (2005), Research and Practice on Development of High Skilled Talents, p.4

Aiming at the said situation, the Chinese government has been setting up a number of policies and taking various measures to promote the training for high-skilled workers. A specific goal, set down in the 11th Five-year Planning Schema of Labour and Social Security Development, is that the total number of skilled workers would reach 110

[24] The original name in Chinese is 高技能人才培养探索与实践（毕结礼，2005）

million; amongst them, the number of technicians and senior technicians would count for 5 percent of total skilled workers, and the number of advanced-level skilled workers would count for 20 percent of total skilled workers.

4.2 History of Vocational Training

Since the founding of the People's Republic of China, the vocational training has gone through four following stages.

4.2.1 Vocational Training during the Recuperation Period of National Economy

In the beginning of the founding of the People's Republic of China, there were more than 4 million of unemployed workers and other unemployed persons left over from the old China. In order to relief unemployment, the Chinese government provided the unemployed with various forms of support, such as giving them opportunities to work instead of relief, self reliance production, returning their home villages to do farm work and delivering relief allowances. While the government offered unemployed workers the job-transfer training covering many kinds of training courses in according with the practical needs of production and construction. The duration of vocational training courses ranged from 3 to 6 months, even to one year. Long-term courses combined with short-term courses, and short-term courses were mainly provided.

The main character of vocational training during this period was focused on providing job-transfer training for unemployed workers. The subjects of vocational training were mainly to teach them practical skills, adding with some necessary contents of politics and culture. Such job-transfer training was efficient to cope with the employment issues in that time.

4.2.2 Vocational Training during the Period of Economic Construction

In 1953, the first Five-Year-Plan was implemented, and China entered the phase of large-scale economic construction. During this period, with the emergence of demand for lots of new skilled workers from many industrial sections, the major tasks of vocational training were to planned foster skilled workers and their reserve force in accordance with the first Five-Year Plan. The vocational training was focused on training skilled workers.

The training for skilled workers mainly adopted two ways, namely education in technical schools and apprenticeship training, in this period. Some institutions of which

offered jog-transfer training courses and equipped with better facilities were gradually evolved to technical schools.

The technical schools focused on training workers with secondary-level skills or techniques, and the schooling length was genera1ly 2 or 3 years. The graduates of such schools were required to reach the intermediate level in operational skills. The apprenticeship training mainly recruited the urban youths at the age of and over 16 years. The training was conducted in the way of hand-on skills between senior workers to junior workers at workplace in the light of apprenticeship term, training objectives and requirements stipulated by the state. The apprenticeship training was emphasized on training workers with primary level of skills.

During that period, apprenticeship training once was the main way to foster skilled workers. Afterwards, China profited some experiences from former Soviet Union, and a wage-payment system with eighth grade and a skill-hierarchical system adapted with the wage-payment system was established. A system to examine and test the skill grades of skilled workers began to set up.

Vocational training was severely damaged during the Great Cultural Revolution, and it was almost in stagnancy.

4.2.3 Vigorous Growth and Rapid Development for Vocational Training

The Third Session of the Eleventh Central Committee of the Party made a great decision that the central task of the state should focus on economic construction. Since then, China entered a new historical era of socialist modernization construction. During this period, Chinese vocational training witnessed unprecedented development. Technical schools had been recovered and developed rapidly. Apprenticeship training continued to play positive roles in fostering skilled workers with primary-level skills. Employment training centers emerged as the new vocational training force. The vocational training for employees became regulated. The skill-grades examining and testing system for skilled workers had been recovered and improved.

After experienced the reforms over 20 years, a market economy system was established initiatively in China. Labor market has begun to play fundamental roles in allocating labor resources, and a mechanism of market-oriented employment has being established step by step. Accordingly, the mechanism of developing labor force's vocational skills in line with the demand of labor market has been gradually set up. A vocational training system, which includes job classification, occupational standards

setting, vocational training, occupational skill testing, and occupational skill competition, has been taken shape initiatively.

4.2.4 Period of Adjustment, Reform and Development of Vocational Training since the End of 20th Century

At the end of 20th century, under the context of industrial adjustment for State-owed Enterprises (SOEs), the emergence of large number of laid-off workers, and the increasing enrol1ment of universities, a lot of people were not willing to participate in vocational training or work as skilled workers. The development of vocational training in China has slowed down.

In order to meet the demand for skilled workers matching with social and economic development, in 2000, the Ministry of Labor and Social Security put forward the reforming guidelines on vocational training of "adjusting layout, enhancing quality, and serving employment" so as to realize vocational training provision in line with the socialized and market-oriented directions. The State has attached great importance to vocational training and education.

In 2002, the Ministry of Labor and Social Security formulated the National Plan on Strengthening Vocational Training to Upgrade Employability[25] and organized the enforcement of the State Training Program on Senior Skilled Talents and the National Action on Revitalizing Skills Training.

At present, China has basically established a vocational training system corresponding to the national vocational qualification system. The system is based on the national job classification and national occupational standards, and it is oriented toward career activities and takes occupational competence as its core.

4.3 Current System of Vocational Training

The current system of vocational training in China is composed of the following key elements: (1) occupational classification and occupational skill standards; (2) vocational training; (3) occupational skill testing and qualification certification; (4) occupational skill competition and skilled talents awarding.

[25] The original name in Chinese is 加强职业培训提高就业能力计划

4.3.1 Occupational Classification and Occupational Skill Standards

In 1988, the Ministry of Labour revised the national skill-grade standards of skilled workers jointly with 45 industrial administrative departments under the State Council. In 1992, the first Catalogue on Job Classification of the People's Republic of China was published. Up to now, over 3200 skill-grade standards (occupational skill standards) for skilled workers have been developed and published.

According to the relevant provision stipulated in Labour Law and Vocational Education Law, 87 occupations are requested to implement an employment permission system. Such occupations are with nature of sophisticated techniques, universal uses, and concerning the safety and legitimate rights of national property and human's life.

In 1999, the first authoritative literature on occupations classification, namely National Occupational Classification Dictionary of the People's Republic of China, was officially published jointly by Ministry of Labour and Social Security, National Bureau of Quality and Technology Supervision, and National Bureau of Statistics. The dictionary consists of 8 major categories, 66 inter-mediate categories, 413 small categories, and 1838 job species.

The occupational standards and the criteria for occupational skill testing are under setting and formulated step by step. A dynamic system of national occupational classification and occupational standards has been initially established, and such a system provides the scientific foundation for labor force management and vocational training. Simultaneously, a vocational skill qualification system with 5 levels, namely from elementary-, intermediate- and advanced-grade skilled worker to technician and senior technician, has set up.

4.3.2 Diversification of Vocational Training and Providers

The vocational training in China incorporates pre-job training, job-transfer training, apprentice training, on-the-job training and re-employment training.

According to the occupational skill standards, the levels of vocational training are categorized into low, medium and senior levels and other adaptation training.

Vocational training is offered by technical schools, employment training centers, within-enterprise vocational training institutions, and other vocational training providers. Technical schools are the main providers of vocational training for skilled workers, while the employment training centers are the main means of providing

training for new laborers and the unemployed. The vocational training conducted in employment training centers focus on both practical skills and adaptation training. In addition, there also are enterprises-sponsored training centers and training providers run by various organizations or individuals.

4.3.3 Occupational Skill Testing and Qualification Certification

The occupational qualification certificates with different levels can manifest the grades of knowledge, skills and competence possessed by laborers. They are the documents to be presented in seeking for job and the major information in recruiting the employees by employers. Since the establishment of the national occupational qualification certification system in 1994, China has developed a working system and legal framework of occupational qualification certification.

In 1999, the system of paying attention to both diplomas and occupational qualification certificates was adopted for the sake of enhancing the laborers' capacity to be employed, starting up their own businesses, and adapting to job transfer. In 2000, the framework of the Employment Permit System was preliminarily set up.

4.3.4 Occupational Skill Competition and Skilled Talents Awarding

The Skill Competition in China is divided into national, provincial and municipal levels. The skill competition at national level is held once in two years. Since 1995, China has been holding annual skill competitions with l0 winners of the “China National Skill Grand Award”, and 100 “National Skill Crackerjacks”.

The establishment of a system of occupational Skill Competition and Skilled Talents Awarding is advantageous to raise the social status of skilled workers, encourage laborers to take part in vocational training programs, and create favorable social atmosphere for fostering skilled talents.

4.4 Legislative Situation on Vocational Training

Up to now, there is no a special law on vocational training (or human resources development) yet in China. The matters of conducting vocational training are stipulated in Labour Law and Vocational Education Law. Moreover, a set of regulations and policies were set up to standardize the vocational training practices. In the scheduled Employment Promotion Law, there would be covering the contents of vocational training. The relevant provision stipulated in Labour Law and Vocational Education Law was as follows.

4.4.1 Labour Law

The Labour Law of the People's Republic of China, adopted at the Eighth Meeting of the Standing Committee of the Eighth National People's Congress on July 5, 1994, stipulated the responsibilities of the state, governments at various levels, and employing units to conduct vocational training, as well as the responsibilities of examination and verification organizations.

The state shall take various measures, through various channels, to expand vocational training undertakings so as to develop professional skills of laborers, improve their qualities, and raise their employment capability and work ability.

The governments at various levels shall incorporate the development of vocational training into their plans of social and economic development, encourage and support enterprises, institutions, public organizations, and individuals, if conditions permit, to sponsor vocational training in various forms.

The employing unit shall establish a system of vocational training, retain and use vocational training funds in accordance with the provision of the state, and provide laborers with vocational training in a planned way and in the light of the actual conditions of the unit.

The state shall determine occupational classification, set professional skill standards for the occupations classified, and practice a system of vocational qualification certification. The examination and verification organizations approved by the government shall be charged with the responsibility of conducting examination and verification of the professional skills of laborers.

4.4.2 Vocational Education Law

The Vocational Education Law of the People's Republic of China, adopted at the 19th Meeting of the Standing Committee of the Eighth National People's Congress on May 15, 1996, was enacted in accordance with the Education Law and the Labor Law, with aiming to implement the strategy of rejuvenating China through science and education, developing vocational education, enhancing the quality of laborers and promoting the construction of the nation's modernization. It stipulated the types and levels of vocational training and the vocational education for disabled persons. This law also stipulated the basic requirements to establish vocational training institutions.

The types of vocational training includes training before employment, training for

army-men transferred to civilian work, training for apprentices, on-the-job training, transfer training and other training with vocational nature. Vocational training may, according to the actual situation, be classified as primary, secondary or higher levels. Vocational training shall be respectively undertaken by corresponding vocational training institutions and vocational schools. Other schools and educational institutions may, according to their educational capacity, develop various vocational training to meet the needs of the society.

In addition to the educational institutions for disabled people which shall give vocational education to disabled people, vocational schools, vocational training institutions and other educational institutions at various levels and of various types shall, in accordance with relevant provisions of the state, admit disabled students and give them vocational education.

4.5 Vocational Training Institutions

The vocational training institutions in China mainly consist of technical schools, employment training centers, within-enterprise vocational training facilities, vocational training organizations run by private sectors, and those organizations run jointly by both domestic and foreign parties. Up to the end of 2005, there were total 2,855 technical schools, 3,289 employment training centers, more than 20,000 within-enterprise vocational training facilities, and 20,341 vocational training organizations run by private sectors nationwide (see Table 8).

Table 8 Number of Vocational Training Institutions in 2005

Name of vocational training institutions	Number
Technical schools	2,855
Employment training centers	3,289
Vocational training facilities within enterprises	More than 20,000
Vocational training organizations run by private sectors	20,341

Source: (1) Except for the number of the facilities within enterprises, other figures are from Labour and Social Security Development Statistical Bulletin (2005), Ministry of Labour and Social Security and National Bureau of Statistics, P.R.C http://www.molss.gov.cn/gb/zwxx/2006-06/12/content_119277.htm

(2) The number of the vocational training facilities within enterprises is from *Training and Employment* (Edited by YU Faming, 2005, China Labor and Social Security Press)[26], p.18

[26] The original name in Chinese is 培训与就业（于法鸣主编，2005 年 1 月第 2 版，中国劳动社会保障出版社）

The vocational training institutions offer various vocational training programs aiming at fostering skilled workers according to the demands of labor market. Its training objects are universal, mainly covering new entrants to labor market, laid-off workers, employees, job transfers, dispatched labor force to overseas labor market, rural emigrants to non-agricultural sectors for employment, the disabled persons, the active duty army-men, the demobilized persons from army and others who have a desire to learn some kinds of skills or to elevate their skills.

4.5.1 Technical Schools

Technical schools are established with the primary responsibility to foster skilled worker. Moreover, they are the comprehensive vocational training bases to offer various short-term and long-term vocational training programs.

Training Objects and Goals of Technical Schools

There mainly are four types of long-term vocational training courses offered by technical schools, namely (1) enrolling from the graduates of secondary vocational schools, after 3-year schooling training, these students will be fostered to senior technical workers; (2) enrolling from the graduates of secondary vocational schools, after 4-year schooling training, these students will be fostered to technicians; (3) enrolling from the graduates of junior high schools, after 5-year schooling training, these students will be fostered to senior technical workers; and (4) enrolling from the graduates of junior high schools, after 6-year schooling training, these students will be fostered to technicians. The details are represented in Table 9.

Table 9 Types of Long-term Vocational Training Courses in Technical Schools

Training Subjects	Years of Schooling	Objectives
Graduates of secondary vocational schools	3	Senior technical workers
Graduates of secondary vocational schools	4	Technicians
Graduates of junior high schools	5	Senior technical workers
Graduates of junior high schools	6	Technicians

Sources: BI Jieli (2005), Research and Practice on Development of High Skilled Talents, p.9

The courses mainly cover skill training and technological theory, adding with certain cultural courses according to the need of concrete occupations. The hours of practical courses usually account for 60 percent of the total courses, while the cultural and technological theory courses account for 40 percent (see Table 10).

Table 10 Proportion of Skill Training and Knowledge Courses

Contents of Vocational Training Courses	Proportion (%)
Practical Courses	60
Cultural and Technological Theory Courses	40

Sources: CHEN Yu (1992), Vocational Training of Chinese Workers[27], http://blog.sina.com.cn/u/48c4e0be01000512

Technical schools teach their students both comprehensive operational skills and systematic knowledge of technological theory. The graduates of such schools usually possess higher compatibility. They could become the backbone of frontline only after a period of practice when they entered enterprises. The subjects offered by technical schools were mainly aiming at secondary industries originally, and afterward they have been expanded gradually to cover tertiary industries in line with the changing needs of social and economic development.

Technical schools were born and developed going with the development of national economy. At present, they already become the main bases of fostering skill talents in China. Their original responsibility was fostering skilled workers with intermediate-grade skills. Afterwards, in order to meet the needs of economic development, through establishing senior technical schools and technician schools, the responsibility of technical schools was gradually expanded from fostering skilled workers with intermediate-grade skills to raise senior skilled talents covering advanced-level skilled workers, technicians and senior technicians. Moreover, technical schools offer various vocational training courses aiming at different targeting groups in order to foster persons with different levels of skills.

History of Technical Schools

In 1949, there were only 3 technical schools in the nation. The broad establishment and rapid development of technical schools was contributed to the large needs for skilled workers caused by comprehensive development of national economy in 1953. The technical schools were gradually shaped and evolved from vocational training institutions in which offered job-transfers training for the employed sponsored by the labor administrations. At that time, the Chinese government profited from the model of former Soviet Union's technical schools, and the first experimental technical school was established in Beijing in 1954, assisted by former Soviet Union.

[27] The original name in Chinese is 中国工人职业培训（陈宇，1992）

During the Great Cultural Revolution, the development of technical schools encountered seriously undermining. In December 1977, the government started to restore the technical schools weakened by the Great Cultural Revolution.

In February 1979, the National Labor General Bureau promulgated "Technical schools Working Regulations (Trial Implementation)[28]". In September of same year, the National Economic Commission and the National Labor General Bureau jointly stressed to establish new technical schools in a planed manner and to adjust existing technical schools. During this period, the technical schools had been rapidly developed because of the government's high emphasis. Therefore, the number of technical schools increased from 1,267 in 1976 to 3,305 in 1980.

Hereafter, in order to consolidate the growth of technical schools and meet the needs of social and economic development, the government further strengthened the reformation of technical schools. In August 1985, the Ministry of Labour and Personnel proposed "Several Guidance concerning Reformation of Technical Schools[29]". This document requested to overall reform some issues of technical schools, such as the enrolling of students, the setting of subjects, the job assignment of graduates, and so on. Such reformation made a change of technical schools from the sole form to the multi-forms, multi-levels, and in more flexible ways.

In October 1986, the Ministry of Labour and Personnel and the National Education Commission jointly promulgated "Technical Schools Regulations[30]". In May 1989, the Ministry of Labor proposed "Guidance of Deepening Reform concerning Technical Schools[31]". The main contents of the document covered: (1) to expand the range of enrollment, all person who had a desire of voluntarily receiving vocational training in technical schools may register; (2) to cancel the job assignment compulsorily by government, the graduates entered labor market to realize employment through two-direction choices between both sides of supply of and demand for labor force; (3) to determine the wages' levels based on the levels of skills; and (4) to implement a double-certificate system covering diploma and skill-grade certificate.

In order to strengthen the management and promote the standardization of technical schools, in 1991, the Ministry of Labor organized assessment to technical schools. The

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[28] The original name in Chinese is 技工学校工作条例（试行）
[29] The original name in Chinese is 关于技工学校改革的几点意见
[30] The original name in Chinese is 技工学校条例
[31] The original name in Chinese is 关于技工学校深化改革的意见

assessment was divided into two levels, namely qualified and outstanding. Based on the findings of assessment, key technical schools at provincial and national levels were selected respectively.

In 1992, the Ministry of Labor formulated "National Key Technical Schools Standards[32]". Next year, the assessment to national key technical schools was started, and then re-assessment will be conducted every four years. In 1997, the standards were revised. In order to enhance the training quality and to improve the management of technical schools, in 2002, the Ministry of Labour and Social Security formulated "National Key Technical Schools Quality Management Standards (Trial Implementation)[33]" of which were based on profiting from the principles and methods of ISO 9000 quality management system. Through jointly utilizing two sets of above-mentioned standards, the government carried on quality control to the national key technical schools.

Based on the assessment to national key technical schools, the Ministry of Labor tried to set up senior technical schools. In 1990, two senior technical schools were set up in Shandong Province, namely Shandong Province Senior Technical School and Yantai Municipal Senior Technical School, under approved by the Ministry of Labor and the Shandong Province Government. In 1995 and 1997, the Ministry of Labor and the National Planning Commission jointly sent out the notice on the establishment of senior technical schools twice. In 1997, the Ministry of Labor formulated "Establishment Standards on Senior Technical Schools (Trial Implementation)[34]". These standards stipulated that the primary mission of senior technical schools was to foster high-level skilled talents and practical training teachers in the trail stage. The enrollment subjects mainly were the graduates of technical schools and employees, and the length of schooling lasted 2 to 3 years.

During the rapid development of national key technical schools and senior technical schools, started from 1998, the enrollment of technical schools encountered unfavorable influence caused by the expanding enrollment of advanced education and the traditional conception of “superior to diploma, inferior to skills” in the public. Consequently, the number of technical schools and their enrollment gradually declined year by year. By the end of 2000, the number of technical schools decreased to less than

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[32] The original name in Chinese is 国家重点技工学校标准

[33] The original name in Chinese is 国家重点技工学校质量管理标准（试行）

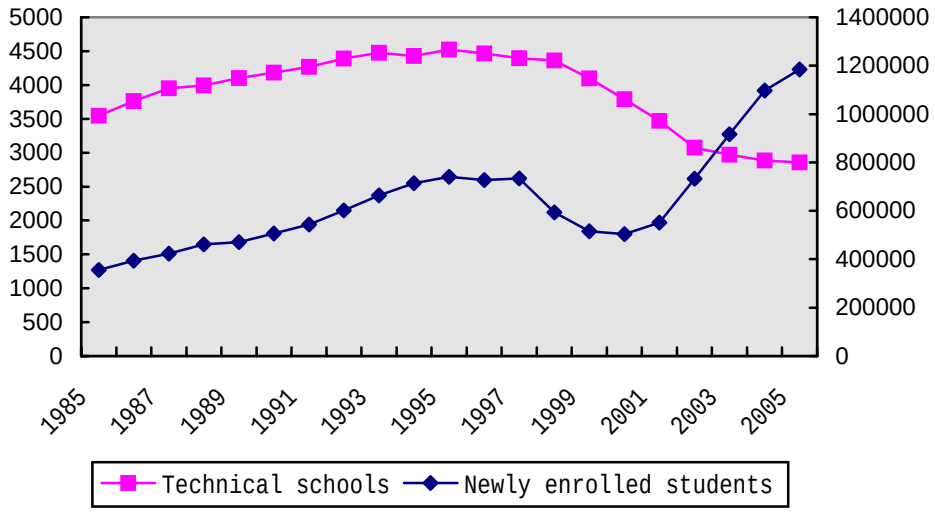
[34] The original name in Chinese is 高级技工学校设置标准（试行）

4,000, the number of students newly enrolled nationwide dropped to the historically lowest of 504,000, and there was a decrease of 230,000 than in 1997.

In order to promote the adjustment and reform of technical schools, in May 2000, the Ministry of Labour and Social Security put forth "Notice concerning Speeding up Reform of Technical Schools[35]". This document proposed the direction of vocational training in line with socialization and to meet the needs of labor market. It also proposed the guiding principle of vocational training, namely adjusting layout, enhancing quality, and serving employment.

By the end of 2005, the number of technical schools nationwide reached 2,855. Although the number of such schools decreased, however, the number of students newly enrolled had a large-scale increase. Both the number of students in school and new enrollment reached the historically highest in this year. The number of students newly enrolled reached 1.184 million, and the number of students in school was 2.753 million. The changes in number of technical schools and newly enrolled students from 1985 to 2005 are demonstrated in Chart 7.

Chart 7 Changes in Number of Technical Schools and newly enrolled Students from 1985 to 2005



Source: China Statistical Yearbook (2006), Compiled by National Bureau of Statistics of China

Up to May 2004, there were 462 national key technical schools and 300 senior technical schools all over the country. A vocational training pattern of fostering high talents characterized by taking senior technical schools as main items, key technical

[35] The original name in Chinese is 关于加快技工学校改革工作的通知

schools as backbone, and promoting the gradual elevation of technical schools, was initiatively shaped.

Management System on Technical Schools

The management system on technical schools has roughly experienced four stages.

(1) Comprehensively managed by Labor Departments (early years of new nation to 1963)

In order to strengthen the management of technical schools, in 1953, the State Council decided that Ministry of Labor was authorized in charge of the comprehensive management for technical schools nationwide. The main functions covered: to formulate regulations and policies on vocational training; to organize the compilation, examination and approving of training plans, teaching outline and materials, and to train teachers of vocational training.

In 1954, the Central Finance and Economics Commission promulgated "Technical Schools Tentative Draft[36]". This document stipulated that technical schools were separately established under the industrial departments, directly operated by industrial system, and comprehensively managed by the Ministry of Labor; the technical schools established by labor departments were managed and operated directly by the Ministry of Labor.

In July 1958, the operation for a portion of technical schools was decentralized to local authorities. The autonomic right to establish technical schools of local governments was emphasized. The system of technical schools comprehensively managed by Ministry of Labour was remained.

(2) Managed by Ministry of Labor and Ministry of Education (1964- 1978)

In 1964, the state proposed to vigorously develop vocational schools and carry out a educational system of work-study program (半工半读). In order to be advantageous for unified management, in same year, the State Council decided that the management of portion of technical schools turned over educational departments. Those established by labor departments were still managed and operated directly by the Ministry of Labor.

(3) Restored Comprehensive Management by Labor Departments (from 1978)

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[36] The original name in Chinese is 技工学校暂行办法草案

In order that vocational training conducted by technical schools may meet the needs of economic development and serve the employment well, in 1978, the State Council determined to recover the comprehensively managerial responsibility of Labour Ministry. Accordingly, those technical schools managed by Ministry of Education returned over National Labour General Bureau.

The management system of technical schools was represented as the technical schools established by local authorities were operated by relevant industrial departments under local authorities, and the technical schools established by departments of the State Council were operated by relevant departments of the State Council. The National Labour General Bureau and local labor departments were in charge of the comprehensive management of technical schools in line with the corresponding administrative levels.

This stage was being in the reforming of economic system in China, so the prominent change of management on technical schools was turning the managing way from injunctive management under planed economic system to planned accommodation under market economic system.

(4) Decentralized Management by Local Authorities (from 1998)

From 1998, the management system on technical schools was readjusted. The main contents of this readjustment covered that the operation of technical schools established by industrial department under the State Council was turned over local authorities. The responsibility of comprehensive management on technical schools by departments of labour and social security was remained.

4.5.2 Employment Training Centers

The employment training centers were born going with the needs of society and economy development. They mainly offer vocational training programs focused on practical skills and adaptive training. Such centers are the vocational training bases aiming at targeting groups like new entrants to labor market, job-transfers and the unemployed so as to equip them with occupational skills for their realizing employment and re-employment.

History of Employment Training Centers

The employment training centers were established based on labor service companies. At the end of the 1970s, the pressure of employment in China was extremely strenuous

and arduous. There were millions of urban youth who needed to get employed every year. In order to alleviate the employment pressure, provide employment opportunities for youth, and help them to enhance occupational skills, in July 1978, the State Council proposed to establish labor service companies functioned with promoting youth and the unemployed to get employed and offering vocational training.

In August 1980, the government proposed an employment guiding principle of "three-in-one combination", namely recommended employment by labor departments, spontaneously organizing to start up businesses for employment, and seeking employment opportunities by themselves. The labor service companies were rapidly developed under such social context. By the end of 1981, the number of labor service companies reached more than 7,600.

Labor service companies had been functioned with vocational training since they were born. The emergence of such companies had met the needs of reforming labor and employment system at that time. They had supplemented and enriched the original vocational training system, especially offering vocational training for the employed.

In 1996, the Ministry of Labor started to organize the assessment to employment training centers and authorize the key employment training centers. After experienced more than 20 years, the employment training centers already became quite indispensable to vocational training.

Characteristics and Duties of Employment Training Centers

The characteristics of employment training centers mainly cover the following: (1) offering diversified vocational training programs; (2) mainly providing short-term courses and teaching a kind of skills in order to help trainees get employed rapidly; and (3) the training contents mainly cover practical skills supplementary with corresponding theoretical knowledge.

The duties of employment training centers are composed of offering pre-employment training for new labor force and providing skill training to all of workers who have a desire to learn a kind of skills and enhance their occupational skills.

Under the changing context that market economic system has been constantly improved in China, the scope of employment training centers' activities has changed accordingly. Some centers established by provincial and large municipal governments are gradually evolved to the service institutions with the functions of guiding and

providing technical support for local vocational training authorized by local governments.

Management of Employment Training Centers

Both the initial labor service companies and the later employment training centers were and are managed by the labor departments. In 1991, the Ministry of Labor formulated "Employment Training Centers Management Stipulation[37]". This document stipulated the objectives, duties, qualifications, and some others standards and requirements of employment training centers.

4.5.3 Within-enterprise Vocational Training Facilities

Within-enterprise vocational training is conducted in the facilities sponsored by enterprises themselves, including training centers, workers and staff schools, and various training courses. Some of enterprises also established their own technical schools as the principal bases to train their workers. Such technical schools mainly offer vocational training to key skilled members and employees so as to enhance the levels of their skills. The vocational training conducted in such training facilities usually take the ways of off-job training, part-time training or training in spare time.

The with-enterprise vocational training is an important portion of vocational training in China. The government always attaches importance to the vocational training conducted by enterprises. In 2002, the State Council requested enterprises to establish their own vocational schools and vocational training facilities according to their actual needs; to strengthen education and training for front-line workers and post-transfer workers; and to institutionalize the on-the-job training and post-transfer training.

At present, there are more than 20,000 vocational training facilities within enterprises. A mechanism of within-enterprise vocational training characterized as planned by government, guided by industrial departments, regulated by market, and conducted independently by enterprises, has been gradually formed. The government advocates that enterprises carry on fostering and elevating the skills of their workers, and encourages creating such enterprises with the feature of career-life study, even a society of lifelong study.

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[37] The original name in Chinese is 就业训练中心管理规定

4.5.4 Vocational Training Organizations Run by Private Sectors

The vocational training organizations run by private sectors is referred to such educational and vocational training organizations that were established by social organizations excluding national institutions or individuals, utilizing non-financial funds, and aiming at the needs of society. The state implements relevant policies to positively encourage and support the establishment and development of vocational training organizations run by private sectors. The emergence and development of such vocational training organizations has met the needs of different targeting groups and supplemented original vocational training. In December 2002, a law named as "Law of the People's Republic of China on the Promotion of Privately-run Schools[38]" was promulgated. This law made clear that labor and social security administrations were in charge of the examination, approval and management for vocational training organizations run by private sectors. By the end of 2005, there were 20,341 such organizations all over the country.

4.5.5 Vocational Training Organizations Run jointly by both Domestic and Foreign Parties

The vocational training organizations run jointly by both domestic and foreign parties are referred to such vocational training organizations that their establishment was cooperated by both domestic and foreign educational and training organizations within the boundaries of China, aiming to offer vocational training to the Chinese public. The state encourages introducing the education and training resources with high quality from foreign countries to develop and promote its domestic vocational training. In order to standardize the operation of such organizations, in March 2003, the State Council formulated "Regulations of the People's Republic of China on Chinese-Foreign Cooperation in Running Schools[39]". This document has made clear that labor and social security administrations were in charge of the examination, approval and management for such organizations.

Among above-mentioned institutions of vocational training, most of technical schools and employment training centers fall into public vocational training facilities. Technical schools are the key bases to train skilled workers. The national key technical schools and senior technical schools are the main facilities to foster senior skilled workers.

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[38] The original name in Chinese is 中华人民共和国民办教育促进法

[39] The original name in Chinese is 中华人民共和国中外合作办学条例

4.6 Occupational Skill Testing and Qualification Certification

4.6.1 National Occupational Skill Testing System

In order to raise the desire and enhance the initiative of workers participating in occupational skill testing, and to strengthen the consciousness of respecting skills in the public, the nation has established a national occupational skill testing system. This system includes the testing and examination to the levels of workers' skills and the appraisal to the qualifications of technicians and senior technicians. In July 1993, the Ministry of Labor promulgated "Occupational Skill Testing Stipulation[40]". This document was the legal basis to establish the system and to carry out the activities of occupational skill testing in China.

Management System of Occupational Skill Testing

The nation introduces a socialized management system on occupational skill testing under the guide of the government. This system covers following details.

(1) The Ministry of Labor (now renamed as Ministry of Labour and Social Security) comprehensively manages the activities of occupational skill testing nationwide. Its responsibilities are to set up plans, formulate policies and standards, and examine and approve the organizations for appraisal of vocational skills established by industries.

(2) The administrations of labor and social security at the levels of provinces, autonomous regions, and municipalities directly under the Central Government take responsibilities for: (a) to comprehensively manage local activities of occupational skill testing; (b) to examine and approve the establishment and operation of vocational skills appraisal instruction centers and vocational skills appraisal institutes located in local regions; and (c) to formulate following related stipulation and implement measures, such as the qualifications of occupational skill testing for each occupation, the procedures of testing, the methods of testing and examining for theoretical knowledge and practical skills, the principles and management methods of organizing the testing and examining groups, the rules of examiners and examining affairs, the rules of testing and examining sites, and the ways of printing and issuing the skill-grade certificates.

[40] The original name in Chinese is 职业技能鉴定规定

(3) The vocational skills appraisal instruction centers are with responsibilities for organizing, coordinating, and instructing the implementation of occupational skill testing.

(4) The vocational skills appraisal institutes are in charge of the concrete implementation of occupational skill testing.

Vocational Skills Appraisal Instruction Centers at various Levels

Vocational skills appraisal instruction centers at levels of nation, provinces, autonomous regions, and municipalities directly under the Central Government are the indispensable portion of national occupational skill testing system. They take important and different responsibilities respectively.

The vocational skills appraisal instruction center under the Ministry of Labor (now renamed as China Employment and Training Technology Instruction Center, Ministry of Labour and Social Security) mainly takes the following responsibilities: (a) to participate in the formulation of national occupational skill standards, organize and set up the databases of national occupational skill testing and examining questions; (b) to conduct research and provide consulting services on occupation classification, occupational skills standards, and skill testing theory; and (c) to impel and promote national occupational skill competition.

The vocational skills appraisal instruction centers at levels of provinces, autonomous regions, and municipalities directly under the Central Government are mainly in charge of: (a) to organizes the implementation of occupational skill testing within local regions and to concretely implement the qualification training for examiners; (b) to conduct relevant research and provide consulting services on occupational skill testing and examining; and (c) to impel and promote local occupational skill competition.

Under approved by the Ministry of Labor (now by Ministry of Labour and Social Security), the related industrial departments may establish their own vocational skills appraisal instruction centers. The responsibilities of such industrial centers cover: (a) to participate in the formulation of special occupational skill standards excluded in national occupational skill standards. Such standards are only suitable for their own industries not for general occupations in the society; (b) to organize the implementation of occupational skill testing on special occupations within their industries and to concretely implement the qualification training for examiners; (c) to conduct relevant

research and provide consulting services on occupational skill testing and examining; and (d) to impel and promote occupational skill competition within their own industries.

Testing and Examining Papers

The Ministry of Labor and Social Security organizes related experts and industries to draw up unified testing and examining questions and to establish databases of the testing questions according to the National Occupational Skills Standards[41] and the Workers' Technical Grading Standards[42]. The testing and examining papers should be formed in a way of extracting questions from the databases.

Examiners of Occupational Skill Testing

The examiners of occupational skill testing should have the qualification of and above advanced-level skill worker, technician, or middle-level professional technical qualifications. As for the appraisal of technician's qualifications, the examiners should have the qualification of senior technician, or high-level professional technical qualifications.

Ways and Times occupational skill testing

National occupational skill testing covers two parts, namely theory knowledge examination and actually practical test. Usually, such test and examination are held twice every year, i.e. in May of the first half year and in November of the second half year.

4.6.2 National Occupational Skill Qualification Certificates

The state introduces a system of occupational skill qualification certificates. The grades covered by this system are divided into 5 levels, namely skilled worker with elementary-level, secondary-level and advanced-level skills, technician and senior technician.

The workers who have passed the national occupational skill testing and examination will get corresponding "Technical Grading Certificate". For those persons who have passed the technician qualification appraisal, they will get corresponding "Technician Qualification Certificate" or "Senior Technician Qualification Certificate".

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[41] The original name in Chinese is 国家职业技能标准

[42] The original name in Chinese is 工人技术等级标准

The said occupational skill qualification certificates are the occupational skill-level certificates of skilled workers, and also are valid documents for Chinese citizens to get employed overseas.

4.7 Training for Vocational Training Teachers

4.7.1 Special Stipulations

There are special stipulations on training for vocational training teachers in China. In 1989, in view of some factors, such as the rapid development of vocational training, the sharp increase of the number of technical schools and employment training centers, but the serious shortage both of the quality and quantity of vocational training teachers and practical training teachers, the Ministry of Labor promulgated the " Implemented Measures of Training for Practical Training Teachers[43]" and "Notice to Strengthen Fostering for Occupational Technology Training Teachers[44]". These two documents aimed to promote the fostering of vocational training teachers and satisfy the needs of development of vocational training.

The main contents of these two documents were to emphasize the fostering for vocational training teachers' troops according to the special features of vocational training focused on skill formation. A new troop of vocational training teachers with the abilities integrated teaching theoretical knowledge and instructing technical operation should be gradually established in technical schools. As for employment training centers and within-enterprise training centers, a teaching troop that adapted to the needs of vocational training should be raised, and such troop mainly takes the full-time teachers as the backbone while combining with some part-time teachers.

In January 2002, in order to further improve the quality of vocational training and facilitate vocational training to meet the needs of the rapid readjustment of economic structure and the development of modern science and technology, the Ministy of Labour and Social Security promulgated "Notice to Strengthen the Fostering of Vocational Training Teachers[45]". This document requested to actively practice a system of holding qualification licenses to the post of vocational training teachers and to further establish and consummate the training system on vocational training teachers, so as to enhance the overall quality of teachers as well as to gradually form a teaching troop

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[43] The original name in Chinese is 关于培养生产实习指导教师的实施办法
[44] The original name in Chinese is 关于加强职业技术培训师资队伍建设的意见
[45] The original name in Chinese is 关于加强职业培训教师队伍建设的意见

characterized by suitable quantity, reasonable structure, having higher occupational ethics and stronger innovative consciousness.

4.7.2 System on Fostering Vocational Training Teachers

The vocational training teachers in China are divided into classroom teachers, practical training teachers and classroom-training teachers.

According to the said stipulation and requirements, technical schools, employment training centers, and others vocational training organizations should formulate a training plan for their teachers, covering training courses of political theory, post qualification-license-getting training and upgrading training, in line with their own actual situations. Various vocational training institutions should secure opportunities to positively encourage their teachers receiving education and training in diversified ways.

The length of receiving upgrading training for teachers in technical schools should not be less than 80 hours every two years; and those in employment training centers and others vocational training organizations should not be less than 50 hours every two years. The actual outcome that teachers participate in the relevant training will be taken as one of the major factors for assessment to technical schools and employment training centers.

4.7.3 Training Institutions

The training for vocational training teachers is not conducted by any exclusive organization in China. Such training institutions comprise advanced occupation technology education university and colleges （高等职业技术师范院校）, senior technical schools, and some of technical schools and within-enterprise training centers.

The Tianjin University of Technology and Education[46] (originally named as Tianjin University of Occupational Technology and Education) is one of such training institutions, and it is worth talking here. This University was established by the government and operated by the Ministry of Labour in 1979, and it was one of the advanced universities and colleges of occupational technology and education originally established. At that time, it mainly took the fostering for vocational training teachers as its responsibility. In addition, it also conducted the research on teaching techniques and methods, the compilation and development of teaching materials, the promotion of

[46] The name in Chinese is 天津工程师范学院。The original name was 天津职业技术师范学院

experiences exchange, and others related activities on vocational training. The goal of this university was to become the training and retraining center for teachers of vocational education and training nationwide.

In March 2000, the university was reformed to apply a new management system, namely it was established jointly by the central government and Tianjin municipal government, and mainly operated by Tianjin municipal government. At present, the university has become a university in which mainly focuses on the subjects of education and technology, while also offers multifarious subjects. The main objectives of the university are fostering teachers for the institutions of advanced education, middle-level vocational technology education and training persons with higher-level practical skills and technological knowledge.

As for the fostering for vocational training teachers, Tianjin University of Technology and Education has become major training bases at national level, covering fostering for teachers of vocational training, vocational education, and advanced vocational education.

The university introduces a system of “double certificates”, and such a system is characterized by training teachers of vocational training and education with “integrative abilities”. The “double certificates” mainly means that the graduates of this university could get a diploma and a certificate of national vocational skill qualification issued by the administrations of labor and social security. The meaning of vocational training and education teachers with “integrative abilities” (also called as Classroom-training Teacher) is referred to a new kind of teachers with the abilities of both teaching theoretical knowledge and instructing practical skills training. In 2003, the first batch of bachelors with the qualification of technicians was graduated from this university.

The university also is qualified with offering the courses for master's degree. At present, the courses for 10 majors of master's degree, such as machine manufacturing and automation as well as vocational education and so on, are offered. The university has been equipped with some special institutions for conducting research and providing practical skills training to their students, for example, the Institute of Vocational Education, the Training Center for Advanced Vocational Technology, the Practical Skill Training Factory for students to conduct production practice and receive skill training, and the Affiliated School of Advanced Technology for students to practice their teaching skills.

Apart from Tianjin University of Technology and Education, some of others educational institutions, like the colleges and universities of advanced technology education as well as senior technical schools etc., also offer training, retraining, and upgrading courses for the vocational training teachers. Meanwhile, some of technical schools and within-enterprise training centers that satisfy stipulated requirements could provide practical training teachers with the training of high-level theoretical knowledge and practical skills pertaining to appropriate occupations.

4.8 Establishment of Vocational Training Institutions

In order to soundly develop vocational training and standardize the management of vocational training institutions, in December 1994, the Ministry of Labor promulgated "Management Stipulation on Vocational Training Entities[47]". This document explicitly stipulated the basic requirements to establish and manage the vocational training institutions. According to the document, to establish vocational training institutions should mainly comply with the following procedures.

(1) The vocational training entities established by governments aiming at raising workers with elementary-level vocational skills and non-technical workers should be approved by local governmental authorizations; those institutions established by social organizations with the qualifications of juridical persons should be examined and approved by senior governmental authorizations; those established by individuals should be examined and approved by the administrative departments of labor and social security at county- and regional levels.

(2) The vocational training entities established by industrial departments under the State Council aiming at fostering workers with intermediate-level vocational skills should be approved by industrial departments under the State Council, under consulting with local labor and social security departments; those established by local organizations and individuals should be examined by the administrative departments of labor and social security at the levels of province, autonomous region, and municipality directly under the Central Government, and approved by the governments at same levels.

(3) The establishment of vocational training entities aiming at fostering workers with advanced-level vocational skills should be examined and approved by administrative

[47] The name in Chinese is 职业培训实体管理规定

department of labor and social security under the State Council (Ministry of Labour and Social Security).

The establishment of within-enterprise training facilities may be voluntarily decided by enterprises and should put on records to local administrative departments of labor and social security.

As for the management of various vocational training entities, the administrative departments of labor and social security at and above county levels are entitled to comprehensively manage the vocational training institutions located in their regions.

Summary

Through carefully examined the current and historical vocational training system in China, we can ease to find the following features.

(1) The government has been attached importance to vocational training since the founding of the People's Republic of China, with a longer history over 50 years. The public vocational training emerged at the beginning of the founding of the new China, and it was the measure to relief unemployment in the late 1940s to the early 1950s. At that time, the government provided unemployed workers with the job-transfer training based on the actual needs of national economic development. Afterward, the vocational training has been gradually developed, reformed and improved along with the changing needs of the socioeconomic context.

(2) Basically, the vocational training institutions in China were comprehensively managed by labor and social security departments (the early name was labor departments, and the late name was and is labor and social security departments) at various levels, and respectively operated by the bodies that established the vocational training institutions. The manners of labor and social security departments to manage the vocational training institutions (excluding those established by labor departments) are utilized more controlling the training quality instead of operating directly.

(3) The state has not enacted a special vocational training law or human resources development law yet up to now. The matters of conducting vocational training are stipulated in Labour Law, Vocational Education Law, and a set of regulations and policies. These laws, regulations and policies have been gradually perfected according to the change of socioeconomic context.

(4) The current system of vocational training is mainly composed of four elements,

namely (a) occupational classification and occupational skill standards; (b) vocational training; (c) occupational skill testing and qualification certification; and (d) occupational skill competition and skilled talents awarding.

(5) Vocational training is offered by technical schools, employment training centers, within-enterprise vocational training institutions, vocational training organizations run by private sectors, and those organizations run jointly by both domestic and foreign parties. The public vocational training facilities cover most of technical schools and employment training centers. The targeting groups of vocational training mainly cover new entrants to labor market, laid-off workers, employees, job transfers, dispatched labor force to overseas labor market, rural emigrants to non-agricultural sectors for employment, the disabled persons, and others who have a desire to learn some kinds of skills and to elevate their skills.

As for the fostering for senior skilled workers, such training is mainly provided by technical schools, especially by national key technical schools and senior technical schools. The fostering for skilled workers in technical schools were mainly aiming at secondary industries originally, afterward they have been expanded gradually to cover tertiary industries in line with the changing needs of social and economic development.

(6) The vocational training teachers cover classroom teachers, practical training teachers, and classroom-training teachers in China. As for the fostering for vocational training teachers, they are provided by a number of institutions, such as advanced occupation technology education university and colleges （高等职业技术师范院校）, senior technical schools, some of technical schools, even within-enterprise training centers, instead of any exclusive organization.

(7) The state has established a national occupational skill testing system so as to encourage workers to participate in the skill testing and to strengthen the consciousness to respect skills in the public. Such a system began with the examination and test for the skill grades of skilled workers in the 1950s, and it matched with the wage-payment system with eight grades at that time. The current system was shaped in line with the Occupational Skill Testing Stipulation, promulgated by the Ministry of Labor in 1993, and it based on the original system of examining and testing the skill grades of skilled workers.

This system includes the test and examination for the levels of workers' skills and the appraisal to the qualifications of technicians and senior technicians. Up to now, the

grades under the system are divided into 5 levels, namely elementary-, intermediate-, advanced-level, technician and senior technician.

The first Catalogue on Job Classification was published in 1992. Up to now, over 3200 skill-grade standards have been developed and published. Among them, 87 occupations are requested to implement an employment permission system. In 1999, the first National Occupational Classification Dictionary, consisted of 8 major categories, 66 intermediate categories, 413 small categories, and 1838 job species was published. The occupational standards and the criteria for occupational skill testing are under setting and formulated step by step. A dynamic system of national occupational classification and occupational standards has been initially established.

5. A Comparison between Japan and China

After examined the outline of labor market and the experiences of vocational training in both Japan and China, the main resemblances and differences between two countries could be easily observed.

5.1 Being in Different Economic Development Phases

Since the end of the World War Ⅱ, the Japanese economy experienced such a history of high economic growth, stable growth, collapse of the “bubble economy”, low growth, and gradually sustained economic recovery. Actually, it is said that the modernization of Japan started in 1868 when the feudal system was replaced by a more outward-looking and modernization-oriented government (Saburo Okita, 1980, p.94), so far near to one and half centuries. Its nation has witnessed a longer history of industrialization, and then it entered the era of information technology. In spite of encountered the collapse of “bubble economy”, the stronger foundation of economic development maintains the Japanese economy keeping the rank of the second biggest economic power in the world.

The founding of the People’s Republic of China was with a history of only more than 50 years. Its economy experienced the overall development from 1950s to the early 1960s. Unfortunately, the Great Culture Revolution had caused its economy nearly to be in stagnation. The modernization in China was started in 1978, based on the decision to focus on the economic construction made by the Session of the Eleventh Central Committee of the Party. This decision was a landmark, and it marked that China

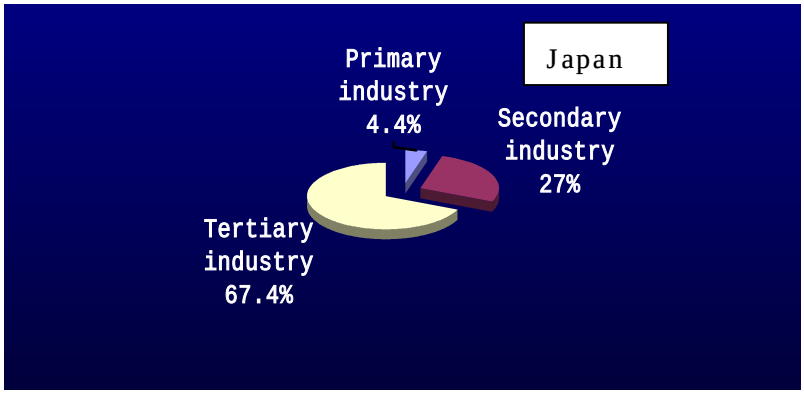
entered an era of socialist modernization construction. The history of modernization in China has witnessed only more than 20 years and less than 30 years. It almost entered the era of both industrialization and information technology simultaneously. After going through the development over 20 years, Chinese economy has become the fourth biggest power in the world.

As suggested by the Lewis model (Lewis, 1954), initial economic development often causes intense shortages of skilled and highly qualified workers (Kazuo Koike and Takenori Inoki, 1990, p25). Maybe, the said suggestion could explain the reason, to some extent, why the issue of serious shortage for senior skilled workers emerged in China at present.

5.2 Different Features of Labor Markets

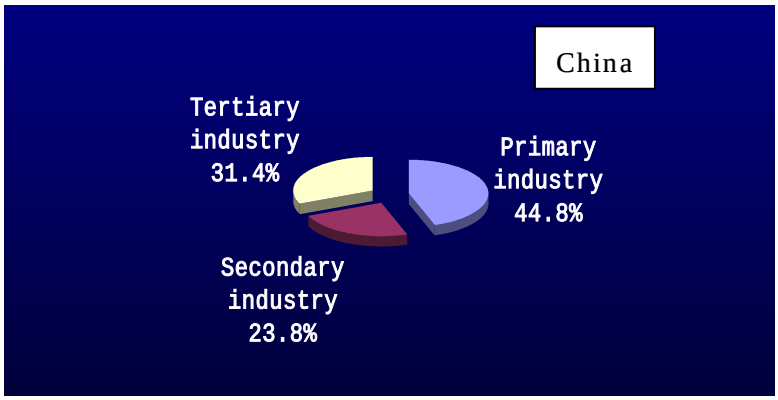
There are many differences in the labor market between Japan and China, especially in the employment structure. Take the number in 2005 for an example, the proportion of persons employed in primary industry was 4.4 percent in Japan, and it was far lower than 44.8 percent in China; the proportion in secondary industry was 27.0 percent in Japan, and it was slightly higher than 23.8 percent in China; and the proportion in tertiary industry was 67.4 percent in Japan, and it was far higher than 31.4 percent in China (see Chart 8).

Chart 8 Employment Structure by Industries in Japan and China (In 2005)



Source: The Japan Institute for Labour Policy and Training (2006), Labor Situation in Japan and Analysis: General Overview 2006/2007, p.25
http://www.jil.go.jp/english/laborinfo/library/documents/Labor2006_2007.pdf

(In 2005)



Source: Labour and Social Security Development Statistical Bulletin in 2005, Ministry of Labour and Social Security

Furthermore, the employment structure in China would be expected to rapidly shift in future, especially from primary industry and to tertiary industry.

The differences of employment structure in existing situation and trends in future would raise the different needs for labor force, including for skilled workers.

5.3 Emergence of Public Vocational Training

In Japan, the emergence of within-enterprise vocational training was much earlier than the establishment of public vocational training. In the period of immediate postwar, there emerged public institution as a measure to relief unemployment. The vocational training from 1945 to 1958 mainly comprised two training systems, namely one was job training (職業補導) based on the Employment Security Law of 1947, and the other was training for skilled workers (技能者の養成) under the Labor Standard Law of 1947. The enactment of the Vocational Training Law in 1958 and the rename to Human Resources Development Promotion Law in 1985 was and is the legal foundation of original and existing public vocational training system.

As for China, the public vocational training emerged at the beginning of the founding of the People's Republic of China, and it also was the measure to relief unemployment in the late 1940s to the early 1950s. At that time, the government provided the unemployed workers with job-transfer training based on the practical needs of national economic development. Afterward, the vocational training has been gradually developed, reformed and improved along with the changing needs of the socioeconomic context.

5.4 Legislation concerning Vocational Training

Japan has enacted a special law of vocational training, original named as Vocational Training Law, and renamed as Human Resources Development Promotion Law in 1985. The enactment of Human Resources Development Promotion Law marked that the emphasis of vocational ability development has been moved from fostering skilled workers aiming at secondary industry to overall development during the labor force' career lifetime. The special law has been gradually revised according to the changing context of socioeconomic situation, technological innovation, and globalization of economic activities.

In China, there has been no a special law on vocational training yet up to now. The matters of conducting vocational training are stipulated in Labour Law, Vocational Education Law and a set of regulations and policies, and they have been gradually perfected in line with the change of socioeconomic context.

5.5 Vocational Training System

Japan has established a highly centralized system on public vocational training since 1958. The government has invested largely to establish public vocational training facilities, such as Polytechnic University, Polytechnic Centers, Life-long Human Resources Development Center, Advanced Polytechnic Center, Polytechnic Colleges, Polytechnic Junior College, Vocational Museum and Prefectural Centers, as well as Human Resources Development Centers for the Disabled. The system covers various targeting group from school graduates, job seekers, employees, white-collar workers, to employers, etc. The public vocational training sponsored by the government and the within-enterprise vocational training complement each other. The lion's share of vocational training remains the provision of those within enterprises (or said industries). The training provided by industries, especially in large corporations, are widespread, intensive, and of high quality.

In China, the government has been attached importance to vocational training since the founding of the new China, with a longer history over 50 years. Overall, the vocational training has been comprehensively managed by labor and social security departments (the early name was labor departments) at various levels, and respectively operated by the bodies that established the vocational training institutions. The manners of labor and social security departments to manage the vocational training institutions (excluding those established by labor departments) are further to control

the training quality instead of to operate directly. The vocational training institutions comprise technical schools, employment training centers, within-enterprise vocational training institutions, vocational training organizations run by private sectors, and those organizations run jointly by both domestic and foreign parties. The targeting groups mainly cover new entrants to labor market, laid-off workers, employees, job transfers, labor force dispatched to overseas labor market, rural emigrants to non-agricultural sectors for employment, the disabled persons, and others who have a desire to learn some of skills and to elevate their skills.

5.6 Fostering for Senior Skilled Workers

In Japan, the main way to foster high-level skilled workers is on-the-job training (OJT), especially informal OJT, in large companies. The principle forms of informal OJT include gradual progression of work experiences, a rotation system and serve in a variety of positions. Off-job training (Off-JT) is being implemented in between the OJT. In public vocational training system, some courses, such as specialized courses and applied courses, may play a role in fostering senior skilled workers to some content, in particular for small- and medium-sized enterprises.

In China, with respect to the fostering for senior skilled workers, they are mainly provided by technical schools, especially by national key technical schools and senior technical schools. The technical schools mainly aimed to foster the skilled workers suitable for secondary industries originally, and afterward they have been expanded gradually to cover tertiary industries.

5.7 Fostering for Vocational Training Teachers

The vocational training instructors training are exclusively offered by Polytechnic University in Japan. Its graduates will work as vocational training instructors at public human resources development facilities, as well as in private companies.

In China, the vocational training teachers cover classroom teachers, practical training teachers, and classroom-training teachers. The fostering for them is provided by a number of institutions, including advanced occupation technology education university and colleges （高等职业技术师范院校）, senior technical schools, some of technical schools, even within-enterprise training centers.

5.8 Occupational Skills Appraisal

Japan has established a National Trade Skill Test System under the Human Resources Development Promotion law (original named as Vocational Training Law). This system started with 5 trades (8 jobs) in 1960 under the old Vocational Training Law of 1958. After the revision and rename of the law in 1985, the trades were rearranged and unified. As of 2002, the number of trades covered in the system was extended to 137. The grades are classified into the special grade, grades 1 and 2 and 3, and basic grades 1 and 2, while others are not classified into grades (single grade)

The Authorization System of Accredited Skill Test (started in 1973) and the Authorization System of Accredited In-house Skill Test (started in 1984) are complementary to the national system. In addition, two special test and examination, i.e. the Computer Services Skills Evaluation Test (started in 1982) and the CAD Tracing Specialist Skills Examination (started in 1997), has been holding under approved by the Ministry of Health, Labour and Welfare.

The Japan Vocational Ability Development Association (JAVADA) cooperated with the industrial organizations sets vocational ability evaluation standards by trade/ industry as the criteria to examine and test the workers' competence. Up to 2005, 23 standards were set and 10 standards are scheduled to be established.

In China, a national occupational skill testing system has also been established. It began with the examination and test for the skill grades of skilled workers in the 1950s, and such a system matched with the wage-payment system with eight grades at that time. The current system was shaped in line with the Occupational Skill Testing Stipulation, promulgated by the Ministry of Labor in 1993.

This system includes the testing and examination for the levels of workers' skills and the appraisal to the qualifications of technicians and senior technicians. Up to now, the grades covered by the system are divided into 5 levels, namely elementary-, intermediate-, advanced-level, technician and senior technician.

As for occupational standards, the first Catalogue on Job Classification was published in 1992. Up to now, over 3200 skill-grade standards have been developed and published. Among them, 87 occupations are requested to implement an employment permission system. In 1999, the first National Occupational Classification Dictionary, consisted of 8 major categories, 66 intermediate categories, 413 small categories, and 1838 job species, was published. The occupational standards and the criteria for occupational skill

testing are under setting and formulated step by step. A dynamic system of national occupational classification and occupational standards has been initially established.

6. Conclusion

There are different models of vocational training in different countries. However, these models are with same purposes, i.e. to facilitate the skill's formation of workers, to improve the quality of labor force, to enhance the labor productivities, and to promote the development of national economy.

Japan has established a vocational training system based on the cooperative efforts between government and industries. Such a system has made Japan became the second biggest economic power in the world, especially for such a nation that has no abundant resources of raw materials. Therefore, the outstandingly economic performance has also proved that Japanese vocational training system is pragmatic and effective in practice.

In view of each country having its own conditions of politics, history, culture, traditions, and economy, it would be infeasible to simply transplant the experiences from foreign countries, including transplant Japanese experiences into China.

Nevertheless, some ingredients of Japanese vocational training system may be worth considering for Chinese policy-making. Firstly, Japan has enacted a special law, i.e. the Human Resources Development Promotion Law. This law emphasizes a concept of promoting overall human resources development. The government is liable for formulating a long-term plan of human resources development in line with the special law. Secondly, in order to ensure the implementation of the long-term plan, the government has also taken many measures, including establishing highly centralized public vocational training system, and encouraging companies and employees to provide and participate in the vocational training by various ways. Thirdly, the industries regard the vocational training as their responsibilities and a way of capital accumulation, especially in the large companies in which have introduced a lifelong employment system.

On the whole, the Japan's vocational training is mainly composed of two portions, namely a highly centralized public vocational training system and more widespread, intensive, and high-quality within-enterprise vocational training. The China's system seems to be more flexible and socialized. In author's opinion, the Japanese within-enterprise vocational training may be more suitable to foster skilled workers in

secondary industries, because in which have longer product circles and are fit to introduce a long-time employment system. As for the tertiary industries, a flexible vocational training system may be more suitable because of the rapid change and the diversification of needs in both the public's demand and products' providing.

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Appendix Table List of Trades for Skill Testing (137 Trades)

Augusut 2002

Building maintenance	Sewing machine naintenance	Concrete block laying
Horticultural decoration	Construction machine maintenance	Tiling
Landscape gardening	Agricultural machine maintenance	Tatami making
Well boring	Refrigerating and air conditioning	Plumbing
Metal melting	equipment installation	Bathtub and bath equipment installation
Casting	Dyeing	Kitchen equipment installation
Forging	Knitted goods manufacturing	Molding box making
Metal heat treatment	Dressmaking	Reinforcing bar assembling
Powder metallurgy	Tailoring	Fresh concrete pumping
Machining	Kimono (Japanese garments) making	Waterproofing
Electric-discharging machining	Bedclothes manufacturing	Rein adhesive grouting
Die making	Canvas goods manufacturing	Interior finishing
Metal press	Cloth sewing	Slating
Iron work	Woodworking machine maintenance	Heat insulating
Building sheet metal work	Machine woodworking	Curtain wall finishing
Factory sheet metal work	Wooden pattern making	Sash setting
Industrial engraving	Cabinet making	Automatic door installation
Plating	Joinery	Balcony installation
Aluminum anodizing	Bamboo arts and crafts	Glazing
Thermal spraying	Carton and corrugated cardboard	Well point installation
Metal spring manufacturing	box making	Technical illustration
Rope processing	Plate making	Architectural drawing
Finishing	Printing	Machinery and plant drawing
Metal polishing and buffing	Bookbinding	Electrical circuit drawing
Cutting-tool grinding	Plastic molding	Chemical analysis
Lumber-saw setting	Reinforced plastic molding	Metallic material testing
Machine inspection	Glass products manufacturing	Lacquer ware making
Die casting	Enamel work	Precious metal accessory making
Machinery maintenance	Pottery making	Stamp engraving
Electronic circuit connecting	Fine ceramics products manufacturing	Paperhanging
Electronic equipment assembling	Stonemasonry	Painting
Electric equipment assembling	Bread making	Traffic sign and lane making
Semiconductor products manufacturing	Cake and Japanese	Paint mixing
Printed circuit board manufacturing	confectionery making	Advertising arts
Home electric health	Noodle making	Artificial limb and prosthetic
equipment adjustment	Ham, sausage and bacon processing	products making
Vending machine adjustment	Fish meat paste foods processing	Stage effects adjustment
Industrial vehicle maintenance	Miso making	Industrial packaging
Railroad car manufacturing	Sake brewing	Photography
and maintenance	Carpentry	Cooking
Watch repair	Platform frame construction	Building cleaning
Eye-glass lens processing	Tile roofing	Industrial washing and cleaning
Optical equipment manufacturing	Scaffolding	Visual merchandising
Copy machine assembling	Plastering	Floristry
Internal combustion engine assembling	Bricklaying	Financial Planning
Pneumatic circuits and apparatus	Furnace constructing	Financial Counter Service
Devices assembling	Architectural block laying	Restaurant Service
Hydraulic system adjustment	ALC panel work	Glass film work

Source: http://www.kokusai.javada.or.jp/english/SESPP/01_sespp/skills_ev_sys.pdf