

# The Enlightenment of German Higher Education “Dual System” to the China’s High Education System

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**Abstract**—The advancement of modern society relies heavily on well-educated people, which in turn demands for good higher education system. German high education “Dual System” combines theoretical learning and practical training, which is nowadays gaining popularity in Germany countrywide. The system is described as “dual” because the whole education is conducted in two places of learning – companies and schools. To tackle the employment problem for both employee and employer, it is helpful to implement a similar higher education system like the German “Dual System” in China. In this paper, after analyzing the development, current statues, and advantages of German higher education “Dual System”, we proposed a solution to enhance the competence of China’s higher education system, from which the graduates will have necessary knowledge, practical skills, and good social adaptability.

**Keywords**—germany; high education; dual system; education module

## I. INTRODUCTION

A dual education system of higher education in Germany, differs from the traditional Universities and Fachhochschulen (FH), combines apprenticeships in a company and education at a school in one course, which is called Berufsakademie. The aim of the Berufsakademie is to transfer the traditional German system of dual vocational training to higher education. Traditional dual vocational training refers to the professional training of young employees, after finishing secondary school, especially young employees who do not have access to higher education. The characteristic feature of this system is that the provision of knowledge and skills is linked to acquiring the necessary job experience. This system has been practiced in Germany and now adopted by many countries. Under the economic crisis, in the European Union there are currently 5.7 million young people under the age of 25 without a job. Many countries are looking for ways to improve the transition between school and employment and are increasingly turning their sights on the dual education system. Combining theoretical reflection in schools with practical in-company experience not only ensures that the business world will have skilled workers with real-life training, but also facilitates the young people’s transition into the labor market.

To get more detailed developments and trends of German modern high education “Dual System”, and to understand the differences between Chinese and German school systems and apprenticeship programs, and to learn how the German dual

education system (academic and apprenticeship) is structured, the author visited several German colleges and exchanged opinions with German academic researchers.

From the current statues and their experiences we found that the higher education “Dual System” in Germany is getting more and more popular, and have a trend of becoming dominated sooner or later.

In the past decades higher education system in China has made considerable progress, but there are insufficiencies arising from rapid expansion of both universities and student number. China needs to effectively guarantee the quality of higher education and graduates since the current situation is that, the social adaptation ability, practical ability and creativity of fresh graduates fall far short of the requirements of companies and factories. This situation leads to that, however, on one hand it is not easy for fresh graduates to find a satisfactory job, but on the other hand factories are hard to recruit a qualified worker. One of the fundamental problems is that the Chinese university students lack trainings and internships. As a result, Fresh graduates have few professional skills and cannot able to work immediately only after trained, with time and costs.

As can be learned from, German higher education system has many successful experiences in teaching, research and management [1] for they not only focused on research capabilities of students but also emphasis on cultivation of their practice ability. Students in college have the opportunity to go to work. It is good for their research and future employment. Therefore, we can learn from the field of higher education in German “Dual System” education model that allows students to learn the educational theory and practical ability at the same time. That ensures students enter a job position without transition period.

## II. GERMAN HIGHER EDUCATION “DUAL SYSTEM”

Based on statics, in Germany around two thirds of every academic year opt to undertake training within the dual system. The new EU targets for vocational training up to 2020, which primarily focus on national training system reforms, are based on the principle of the dual training system. This is due not only to the relative stability of the dual system during the global economic and financial crisis, but also to Germany’s top ranking in terms of high skills levels, good transition into the job market after training and low youth unemployment.

A student studied at the Berufssakademie is both a student and an employee, and carries out periods of course work at the university alternating with workplace or workshop training. Each period of work usually takes 12 weeks and each term consists of one practical component and one theoretical component.

The basic requirement for studying at the Berufssakademie is the German university entrance examination (known as Abitur). In addition, the student has to sign an employment contract with one of the companies or enterprises the Berufssakademie is cooperating with: this is one of the key points of the model. Before the contract signed, an interview may be needed for the partner company. The Berufssakademie student receives salary during the whole learning period. That means that hosting a Berufssakademie student is expensive.

After three years the student finishes his or her studies, Berufssakademie graduates are able to take out a Bachelor degree.

#### *A. Structure and Operational Principles*

The core concept of the dual system of vocational training is training that takes place both at a company and at a vocational school in tandem. The company provides trainees with the practical part of the training for 3 - 4 days a week, while the vocational school delivers the theoretical part for the other 1 - 2 days. Specialists from the companies play the greatest part in the trainees' process of "learning on the job". They are heavily involved in the designing of training regulations - defining the technical content of the training course at the company and setting examination requirements. This plays a major part in ensuring that these regulations meet with acceptance in the companies. Germany's dual system of vocational education and training (VET) has been a major factor in Germany's economic success and inventiveness in the past few decades.

The process of the VET itself is of course governed by certain set of uniform, nation-wide standards. The nation-wide standards and the nationally recognized qualifications act as a quality benchmark for employers and serve as a basis for recruitment. This helps employees to find a new job more quickly. Training programs are first developed through a consensus between the social partners, employers and schools, who must arrive at a preliminary agreement before presenting an application for the creation or reform of training. Students apply one of these applications based on themselves conditions and interests and after the company take on trainees, a one-year training contract will be signed. Additionally, students need to enroll into the vocational schools to complete the required credits.

#### *B. Origin of the Dual System and Current Status*

The dual system in higher education was originated from the vocational training in Germany, which is derived from a tradition that dates back to the Middle Ages. It was not until 1969 that a Vocational Training Act was passed by the German parliament, bringing together the few relevant regulations and laws has been regulated by the statutes of the Chambers. The dual system in higher education has nearly 40 years of history

but it develops rapidly due to its natural advantages. In 1972, cooperating with three global companies - Bosch, Daimler Benz (today Daimler-Chrysler) and Standard Elektrik Lorenz (SEL) - an initiative was started to develop a system of dual education for secondary school graduates and to apply the principles of the dual system of vocational training to the fields of business and engineering at the university level. This development resulted from a demand for high-level skills that research universities were deemed unable to satisfy. In 1974 Baden-Württemberg, one of the economically most successful states of the Federal Republic of Germany, launched a new project and founded the, at the time, new state-run Berufssakademie. These institutions offered study programs in the field of Business Administration, Engineering and Social Work. This system has been proved successful and until 1985 there were Berufssakademien in 6 cities. The Berufssakademie prototype was widely accepted by the society and companies and had been developed rapidly [3].

In recent years, the numbers of students, social institutions and universities associated with the dual system have dramatically increased. In 2011, Germany, there are currently some 929 officially -recognized training projects, including 61195 occupations. The Berufssakademien have 545 projects and 25928 students. Based on the qualifications required, which in turn are derived from the demands made by the work process, this allocation will depend upon which of the two sources of training provide the optimum conditions for imparting the specific training content. This pattern of practical training at work and theoretical training at school is no longer adequate for present day demands.

Vocational training costs are still a major issue in the negotiations between the partners, in particular for firms. Costs vary significantly from firm to firm, but commonly expensive. Training costs also vary according to whether the training takes place on site, as is the case with most of the small- and medium-sized businesses, or in the training workshop of a large enterprise.

#### *C. Responsibilities of the Participating Parties*

Close cooperation between the business world and government is characteristic of the dual system, and this is evident in the way the principles of corporatism and federalism are combined. The federal and state governments perform regulatory and support tasks, while certain important responsibilities are handled by companies or partnership-based bodies such as the responsible agencies.

1) *States and Governments:* The states are responsible for the school-based portion of dual training as well as for most training courses that take place entirely in the school setting. The social partners are involved in developing and updating training guidelines, among other things. Since businesses cannot be compelled to offer training positions, the social partners are responsible for ensuring that an adequate number of training opportunities are available. The federal government coordinates complex negotiating processes, with responsibility for dual training distributed among various ministries. The Federal Institute for Vocational Education and Training (BIBB)

plays an essential role in coordinating guidelines and in research relating to vocational training. The role of the Federal Employment Agency (BA) in vocational training also plays an important role.

2) *Chambers of Industry and Commerce (IHK)*: One of the most important tasks of the Chambers is advising training employers on all problems connected with training, e. g. the training occupations to be considered, how training should be structured, the use of training aids, and educational, psychological and legal questions. The Chamber of Industry and Commerce will ascertain before the start of training and also during the course of training whether these qualifications are present. The task of looking after and supervising training matters is assigned to the training counselors on the staff of each Chamber of Industry and Commerce.

Generally, every trainee must take an interim examination in the course of his period of training. The examination serves to ascertain the level the trainee should reach. The responsible Chamber of Industry and Commerce establishes boards of examiners to hold these examinations. Every trainee sits for a final examination at the end of his period of training in order to show that he has acquired the necessary professional qualifications. The examination includes practical and theoretical tests. After having passed the examination, the trainee will receive an examination certificate issued by the responsible Chamber of Industry and Commerce.

After the Berufsschule and apprenticeship program the students attend the IHK for final occupational exams (they must have 2 years work experience) where their practical skills are tested. If they pass, they receive their Meister Zertifikat (Master Technicians Certificate).

3) *Companies*: Companies play a dominant role in the dual system for they provide most of fees and workplaces. The chambers advise the companies providing training, monitor the training, determine the suitability of companies and instructors, register training contracts and conduct nationwide examinations. This serves to ensure a high level of quality. Plus the companies must provide a tutor or other person responsible for the students, or a human resources officer to deal with them. Their duties may involve daily tutoring and/or targeted training. Considering this only authorized companies have the qualification to train students.

4) *Schools*: Schools provide essential courses or lessons for students and serve the partner companies [4]. Lessons may be taught part-time or in blocks of several weeks. Besides theoretical lectures, schools provide each student with a supervisor to manage the learning process, to ensure the set objectives be fulfilled on time.

#### *D. Advantages of dual system in higher education*

The German model of dual education has apparently transferred well in to higher education system and as such on one side makes up for the poor practical ability of college students and on the other side provides an efficient way of

producing graduates of value to employers in high technology areas. The ability to recruit graduates who already know the company they are working for, and who are able to hold responsible positions without an adaptation period is an important fact for the companies concerning their decision to employ students of a Berufsschule. The close cooperation of the companies and the Berufsschule also guarantees a strong connection with the current requirements of the economy. The collaborative and innovative way of education in a Berufsschule thus leads to motivated young employees well prepared to meet the needs of industry.

The student is an employee of the company from the beginning and has more time to grow his abilities, and can be rapidly integrated into the company. He or she can get recognized qualifications from both company and school, and benefit from the salary from the company.

Then, the companies can get a sufficient supply of skilled labor who knows the theoretical and practical knowledge. After well trained by the company, the graduates have lower induction costs for new appointments. Plus they have greater motivation and loyalty to the company and skills to match the exact needs of business.

Furthermore, this system provides students with good internships, and the schools with good job market prospects.

### III. ENLIGHTENMENT TO THE REFORM OF CHINA'S HIGHER EDUCATION

The trip to Germany confirmed the German dual education system contains the missing link for the China's education system and apprenticeship programs when comparing the student's abilities and skill-sets. The German system combines practical application with academic theory producing a highly advanced and sophisticated workforce at the age of 22 that is ready for work, not only as a shift worker, but as a major contributor to the company. The worker has the skill-sets and the innovative skills necessary to implement new technologies and to assure the company remains productive, progressive, and competitive on the global market.

The objective is not for China's higher education to adopt the German dual system in its entirety. After all, experience shows that Germany's dual system is suitable as a model but not as a blueprint. We must take existing framework conditions into consideration and implement the dual system in line with our own educational, social, and economical objectives if trying to import a foreign system of vocational training. Thus, the objective should be to prudently import adaptable elements of another country's system, but not an exact copy of it.

Importing an educational system, or parts of it, involves more than mere duplication. It is a process of selecting and adapting certain components to suit the objectives and conditions of the potential importing country. China should reviews the experiences of various countries and selects the features that best fit its own goals, structures and culture, adapting them as necessary. Each country's social, cultural and economic conditions determine the methods and strategies to be used in this process.

The vocational training systems in higher education that exist today are the result of certain historical and cultural impacts. Germany's dual system has been shaped by prevailing legal norms, traditions, pedagogical principles and institutional structures. That means, a national vocational training system is a tool for achieving certain objectives, and these objectives can differ from one country to another. There is no "best" system; each one can be judged only by its success in achieving those objectives.

Since reform and opening up, China's economy has made leapfrog development. The rapidly developing economic demands graduates for both quality and quantity. However, the on-site higher education in China is not compatible with current economics. We need to learn experiences from the developed countries and modify it to make it suitable for China [5]. The main enlightenments of German higher education dual system include the follows:

*A. Emphasis on practice, strengthen school-company association*

Practice is the criterion for testing the truth, thus the training must be sufficient in schools. The proportion of practical courses should be increased in higher education and, provide students with a good training platform. Although the so-called "school-enterprise cooperation" has been taken as a guideline, there are still many problems exist when carrying out this principle. The deep cooperation between school and company should be encouraged by means of national acts or some other finical supports.

*B. Reform for today's higher education dual system*

China's higher schools, however, should switch from traditional, class-teaching dominated mode to new educational concept, training objective and teaching system in an extending schooling environment. There's need to restructuring the existed practice of specialty understanding system and give

more practice time to students. At last, both companies and schools should adjust themselves to the market and make the student qualified throughout the working environment.

To conclude, implementing a dual system of education with theoretical teaching in conjunction with practical application through an apprenticeship model will ensure the competitiveness of our workforce be superior on the global human resource market. The companies employing them will have their own competitiveness enhanced on the global level. Meanwhile, the competence of our high education system is also improved to a higher level.

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