

# The Characteristics of Vocational Education in Taiwan and Its Enlightenment to Mainland China\*

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**Abstract**—Colleges and universities in Taiwan play a very important role in supporting economic development of Taiwan. Learning from the advantages and experiences of local colleges and universities in the practice of higher vocational education has important reference value for the construction of the application-oriented undergraduate education system with mainland characteristics.

**Keywords**—vocational education; application-oriented university; education system

## I. INTRODUCTION

Higher vocational education is the education of China to adjust the higher education personnel training structure, improve the quality of national science and culture and the development of the national economy, and develop higher-skilled and applied talents for certain career positions. Higher vocational education plays an irreplaceable role in accelerating China's economic construction. Especially in the critical period of deepening reforms in the economic field of China, the demand for highly qualified and skilled personnel will become even more urgent.

At present, education in mainland China generally exists at the specialist level. Because of the short learning time and the focus on training of skills, it is difficult for technical and vocational education to master good theoretical knowledge. Ordinary undergraduate education emphasizes the impartation of theoretical knowledge, and the ability to cultivate students' practical ability is weak, so it is difficult for students to be equal to front-line work. Therefore, it is the real issue that higher education must face in the new situation and deserve serious study to make clear the orientation of application-oriented undergraduate talent training and its system construction, and train talents with morality and skill. At the same time, it is also an economic management issue.

## II. BASIC SITUATION OF VOCATIONAL EDUCATION IN TAIWAN

### A. Structure of Vocational Education System in Taiwan

The education system in Taiwan adopts the "two-track" education system where the general education is parallel to vocational education. Vocational education in Taiwan conforms to the demand of economic and social development for talents, absorbs the advanced ideas of western vocational education and the tradition of advocating reading of oriental Confucian culture, and forms a vocational education system with unique characteristics, which can connect the general education system.

The vocational education in Taiwan is divided into two stages: secondary vocational education and higher vocational education. The secondary vocational education stage includes vocational education in junior high school, technical senior middle school, ordinary senior middle school with specialized subjects or comprehensive senior middle school (specialized course) [1]. The higher vocational education stages include vocational school, technical colleges and universities of science and technology; vocational school is divided into two-year colleges and five-year colleges according to the number of years of study. Technical colleges and universities of science and technology may recruit PhD, Master, Bachelor, and Associate Bachelor Degree students. The University of Science and Technology can also recruit PhD students. Vocational education forms a complete system from junior high schools, vocational schools, vocational colleges, technical colleges and universities of Science and Technology based on diversified educational systems and diverse disciplines, and upgrade to master's degree programs.

### B. Present Situation of Vocational Education in Taiwan

With the advent of global economic integration and knowledge economy era, a large number of traditional

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\*Foundation Project: Fujian Provincial Middle-aged and Young Teachers' Educational Research Project in 2017 (JAS170707)

industries in Taiwan are gradually replaced by emerging science and technology industries. The demand for knowledge-based talents and knowledge-based technical talents increases, and the demand for operational workers and low-level skilled workers decreases. At the same time, with the decline of the birth rate in Taiwan, the phenomenon of low birth rate has become more and more serious in recent years. Parents have the ability to provide more and better learning opportunities for their children, so that their children studying in university is still the first choice. The prevalence of pursuing high academic qualifications has led directly to the shrinkage of college students, with the number of students enrolled in the second and second colleges declining from 31,094 and 13,660 in 2004 to 5,842 and 505 in 2016 respectively.

The number of colleges and universities has also declined year by year, and the number of technical and vocational universities and general universities has increased year by year. In recent years, technical and vocational colleges in Taiwan have changed their names rapidly, and their occupational orientation is not clear, which is not very different from that of ordinary universities. They have lost the functions and features of vocational education in the past, which leads to the enlargement of the gap between learning and application, and the emergence of many problems in industry and school education and so on. In the allocation of educational resources, the Ministry of Education in Taiwan places more emphasis on ordinary universities. These factors in policies, society, industry, schools and so on together lead to the decline in the competitiveness of technical and vocational education in "Fig. 1".

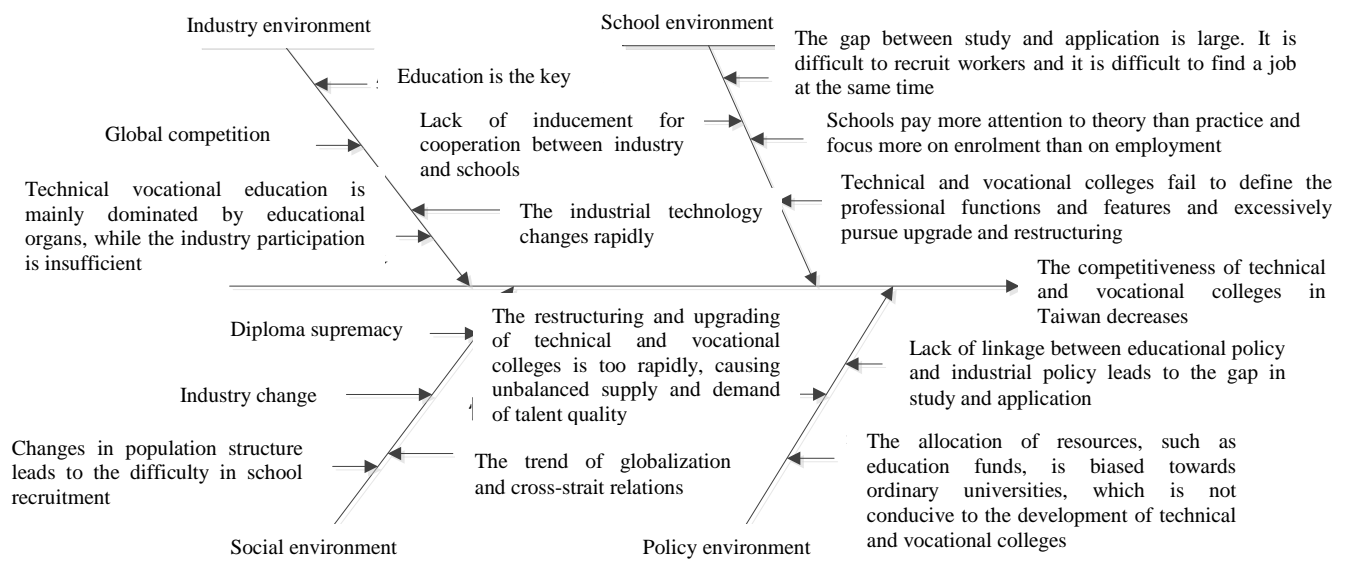


Fig. 1. Analysis of the reasons for the competitiveness decline of technical and vocational education.

### III. CHARACTERISTICS OF VOCATIONAL EDUCATION IN TAIWAN

#### A. Creating Teaching Staff with High Quality

To strengthen the practical teaching ability of teachers in technical and vocational colleges, "Ministry of Education" of Taiwan requires that new teachers in technical and vocational colleges should have more than one year's working experience in an enterprise. After six years of teaching, they should study or research at least half a year in the cooperative organizations of technical and vocational colleges or the industries related to their teaching fields. Each year, about 2,700 teachers should be selected for industrial study or research, and a certain amount of subsidy should be given.

Many of the teachers in technical and vocational colleges in Taiwan have doctorates, and teachers are relatively strong. Most of part-time teachers and a considerable number of full-time teachers come from enterprises or industries, with

rich relevant industry experience. They not only have a higher level of education, but also have rich actual combat experience and extensive social relations. They fully understand the needs of the industry, and can guarantee the personnel meet the needs of the corresponding enterprises to the largest extent, which is a strong guarantee to achieve graduates employment and good career.

#### B. Constructing "Overpass" Educational System Structure

At the end of the 20th century, Taiwan established a relatively complete vocational education system consisting of "Higher Vocational school-vocational college-Colleges\Universities of Science and Technology" to train semi-technical workers, full-technical workers, technologists, technicians, and engineers. After entering the 21st century, this system has been further perfected. The vocational education system and the general education system develop in parallel, and education of different levels and different types link up with each other to form system itself, so that multi-enrollment system has been promoted deeper. Thus

higher vocational students and general high school students have the same opportunity to enter school.

*C. Pursuing the "Practical and applicable" Teaching Mode of Cooperation between Industry and School*

The basic concept of vocational education in Taiwan is practical and applicable, emphasizing practical teaching and knowledge application. In order to improve the quality of vocational education, and combine it with the needs of the industry, in 2010, Ministry of Education of Taiwan began to promote the "Vocational Education Reengineering Program-cultivating high-quality professional manpower" by formulating various measures in five aspects of system, teachers, curriculum and teaching, resources and quality management, in order to achieve the goal of improving the teaching environment of teachers and students, strengthening the linkage between production and learning practice, and cultivating high-quality professional personnel. In 2013, the "Motivation Scheme for the Performance of Industry and Education" was launched to encourage the collaboration between industry and schools. Enterprises and technical and vocational colleges should set up R & D centers. Teachers and enterprises are also encouraged to cooperate in R & D and innovation so as to achieve a win-win result of pragmatic teaching and enhancing the competitiveness of enterprises. Six regional industrial and academic cooperation centers have been set up in Taiwan to integrate the resources-sharing windows of official, industrial, academic and research resources, assist regional partner schools to promote industrial, academic and research cooperation, expand areas of cooperation and strengthen the depth of cooperation. In addition, it provides the enterprise forward-looking or applied R & D results and professional field information platform to establish the management and application mechanism for resources, processes and results of research and production [3].

Through the development of a close combination of industry and school, all types of specialized classes or courses are promoted to provide the talents needed by the industry. Its cultivation mode includes: practical skills learning process, industry-learning cooperation, higher vocational education cooperation, the last mile program, industrial special needs classes, industrial research and development Master's degree classes. Among them, the modes that are more distinctive and successful include the last mile program, industry-learning cooperation, industrial research and development Master program.

*D. Paying Attention to International Cooperation and Exchange to Upgrade the Level of Internationalization of Education*

Taiwan encourages technical and vocational colleges to set up international campuses and subsidize schools to

handle international cooperation projects, such as exchanging teachers and students, selecting students for internships abroad and studying abroad, studying for double degrees, participating in cooperation and exchange of foreign academic and cultural institutions, etc. [4]. The number of foreign students in colleges and universities in Taiwan is also increasing year by year. Most of the teachers have the background of overseas university education. The school provides a good international education and teaching platform for teachers' interaction and students' learning, and promotes the mutual integration of different cultures and the upgrading and development of the quality of education and teaching.

**IV. ENLIGHTENMENT TO THE APPLICATION-ORIENTED UNDERGRADUATE EDUCATION IN MAINLAND CHINA**

*A. Innovating the Mode of Running Schools by Integrating the Four Sides of Government, School, Industry and Enterprises*

Restricted by the system, the private undergraduate universities in China deviate from the local economic development in the aspects of financial input, specialty setting and talent training, which influences the improvement of the efficiency of school running and the quality of talent training. The deep participation of government and industry enterprises in private application undergraduate education can effectively solve these problems. The government-university-industry-enterprise linkage and the introduction of industries to establish industry-university-research cooperation center can make industry-university-research supplement each other, mutually share resources and cooperate to create a win-win situation, and make application-oriented undergraduate universities become the base of industrial innovation research and personnel training as shown in "Fig. 1".

Industry organizations provide information on the needs of industrial talents for management practice education. The local government and the industry enterprise provide the industry talent demand information for the application-oriented undergraduate education, set up the "wind vane" for the school running, give full play to the guidance function of the local government in the cooperative school running, set up the platform of the exchange and cooperation between the industry, enterprise and the application-oriented undergraduate university, and participate in the professional construction of the university and the reform of the talent training mode.

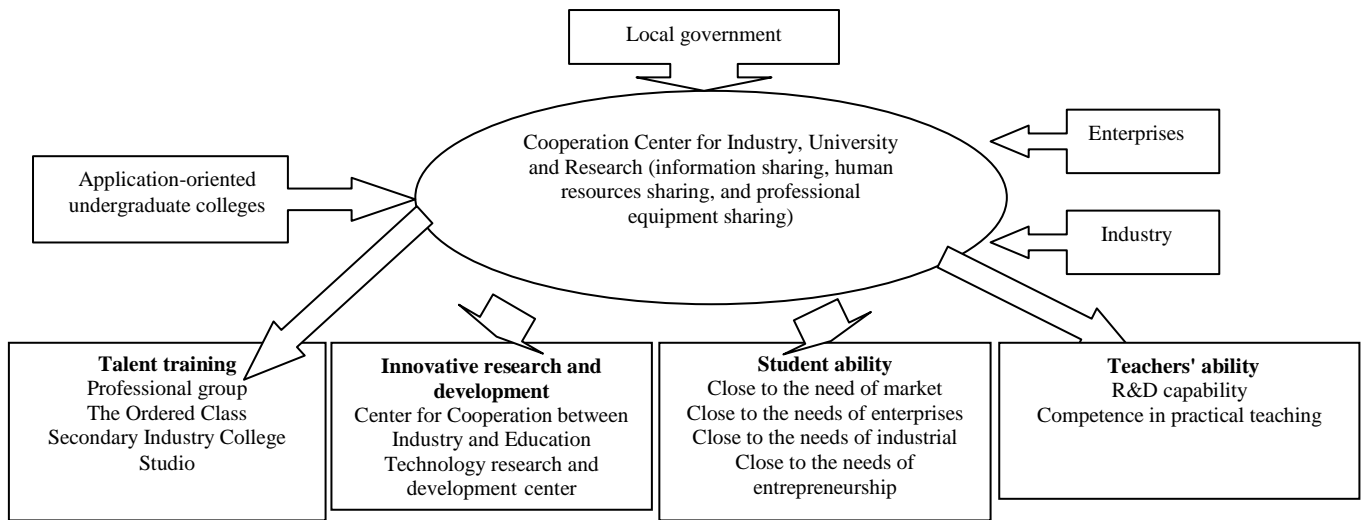


Fig. 2. The four-party linkage model of running school.

### B. Strengthening the Construction of "Double Type Teacher" or "Double Structure" Teachers

The key prerequisite for the success of vocational education cooperation in Taiwan is that the teachers of higher vocational education have made a lot of practical scientific research achievements under the effective incentive mechanism and have been widely used in the industry. On the other hand, the evaluation of teachers in the mainland is more focused on academic papers and vertical topics. Most of the teachers in private application-oriented universities do not have the ability to independently undertake a cooperative project, which leads that many outstanding research results cannot be put into the enterprise application.

The private undergraduate colleges and universities in China can hire the elite with rich experience in business circles to impart skills knowledge to students with the help of the cooperation center of industry, study and research, or employ well-known entrepreneurs and engineers to participate in the formulation of relevant professional training programs, so as to offer suggestions for the development of the university. At the same time, there are plans to select teachers to study in enterprises, guide teachers and students to understand the needs of the industry, and improve teachers' practical teaching ability. In order to encourage teachers make cooperation between industry, school and research, teachers can actively declare horizontal topics through the cooperation centers of industry, school and research, so as to continuously improve their scientific research capabilities.

### C. Creating a "Pluralistic and Stereoscopic" Platform for International Cooperation and Exchange

In order to broaden the macro-view of private application-oriented undergraduate students, it is an urgent issue to integrate with the international practice. We should enrich the software and hardware environment of international campus, improve the foreign language level of teachers and students in an all-round way, and strengthen the

quality and quantity of international cooperation. Application-oriented universities should conclude sister schools according to the characteristics of the schools to formulate reasonable international cooperation projects, such as exchange students, double degree, joint running of schools, selection of students for internship abroad and study abroad, and cooperation and exchange with foreign academic and cultural institutions and so on. Students are encouraged to take part in international skill competitions to expand their international horizons and increase their practical skills. Schools can make academic cooperation with foreign sister school teachers, and plan to send teachers to excellent foreign colleges and universities to study and learn advanced foreign vocational education concept, and scientific teaching methods and so on, to promote the internationalization of teachers. In a word, in the course of internationalization school-running, we should have a wide range of regions, diversified forms, diversified objects, and deepened connotations to enhance the international visibility of schools and the international vision of teachers and students.

### D. Focusing on the Demand of Industry and Activating the Curriculum of Application-oriented Undergraduate Education

Many private undergraduate colleges in China have a vague orientation, lack supporting in practical teaching, attach importance to theoretical courses, and fail to deepen the application of learning. In the era of knowledge economy, application-oriented colleges and universities should respond positively to the latest development needs of related industries, activate school teaching, and cultivate students' ability of innovation, entrepreneurship and re-learning. Besides, they should deeply excavate the connotation of practical teaching of each major, discuss with enterprise deeply, jointly construct practical curriculum system, and strengthen students' humanities quality, work ethic and interpersonal relationship.

Application-oriented undergraduate should be guided by industrial demand, focus on job demand, real-time update the

curriculum content, and cultivate students to have the ability of obtaining employment after graduation. Based on the need of talent structure of enterprises, schools can establish a cross-specialty curriculum platform to achieve the goal of "aiming at an industry and serving a number of enterprises" and connect all kinds of specialties with enterprises in depth and breadth.

#### *E. Establishing "Industry guidance" Practical Teaching System*

The so-called "industry guidance" refers to the personnel training mode of in-depth cooperation between schools and enterprises, which is based on the analysis of occupational needs, the cultivation of occupational ability as the core and the cultivation of enterprise orders as the carrier. The enterprise and the industry standard can deeply penetrate into the talented person training system, thus forming one kind of "the interactive fusion" talented person training pattern. According to the in-depth and repeated communication with the enterprise, they should make clear the talent training objectives and talent service orientation. According to the post setting of the enterprise, the knowledge structure is divided and analyzed, and the talent training standard which is in accordance with the student career development planning is constructed, and the talent training scheme is re-organized.

### V. CONCLUSION

Higher vocational education in Taiwan has cultivated a large number of high-quality technical application-oriented talents for its economic and social development. The mainland and Taiwan have very similar humanistic background and social situation, so we can refer to the successful experience of vocational education in Taiwan. This paper argues that the application-oriented undergraduate course should be different from the ordinary higher education in mainland China. To embody the characteristics of the application-oriented undergraduate course, it is necessary to integrate the four parties of the government, schools, industry and enterprise to fully meet the needs of the industrial talents, connect the professional groups with the industrial groups (chains), strengthen the construction of the dual-faculty and dual-ability teachers, activate the curriculum system, and ensure the coordinated development of production, learning, research and application.

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