

Work integrated learning in China higher vocational education: a discussion on industry education integration models

Jiaojiao WANG^{1,2}, Yunhua ZHANG³

1. International School of Technical Education, Sichuan College of Architectural Technology, Deyang 618000, China

2. School of Management and Marketing, Taylor's University, Subang Jaya 47500, Malaysia

3. School of Accounting and Finance, Taylor's University, Subang Jaya 47500, Malaysia

Abstract: Work integrated learning (WIL) has a century long history of talent training in the education sector, but it takes different forms in different countries. This article attempts to discuss the development of WIL in China's higher vocational education by taking the changing policies of vocational education and the development of WIL in China and points out that the industry-education integrated mode is a new form of WIL in China's higher vocational education. The typical types of industry-education integrated modes (IEIM) are introduced with certain practices, and the advantages and challenges of IEIM will be summarized based on the previous discussion.

Key words: higher vocational education; industry-education integrated modes; work integrated learning

1 Introduction

In the history of education development, modern vocational education has gradually formed in the process of transition from agricultural society to industrialized society. However, the traditional apprenticeship system cannot meet society's needs anymore. Therefore, special schools have been set up to train industrial workers, and some countries have improved the apprenticeship system and combined it with special school training. Meanwhile, with the development of production, technology, and the improvement of service levels, the education and training requirements for front-line practitioners are also constantly changing. The training of front-line practitioners has gradually developed into a vast system and has become an essential part of education, called vocational education. After years of practice, the training goal of vocational education is to develop practical skills on the front line, which is in line with the needs of the country's development of vocational education. Such useful talents are trained to become technical, skilled, or high-quality workers and professionals [1].

Judging from the policy changes in China's vocational education over the past 25 years, the role of vocational education has become increasingly important. Among them, the primary function of higher vocational education has become increasingly apparent. Industry education integration models, which calls for multi-agent participation in higher vocational education, has been emphasized as the mainstream for cultivating high-tech skilled talents. This paper aims to understand the development of IEIM and discuss the advantages and challenges of IEIM in the context of higher vocational education in China.

Copyright © 2023 by author(s) and Frontier Scientific Research Publishing Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>

2 The development of vocational education based on work integrated learning in China

The historical development of WIL education in China can be roughly divided into four stages:

The first stage: In the mid-19th century, China's social productivity was backward, economic and social development was slow, and the WIL of vocational education was concentrated on the mode of masters and apprentices. There were no strict time limits and allocations for work and study, and the masters delivered technical skills without knowledge [2].

The second stage: From the mid-19th century to the 1920s, due to many significant historical events in Chinese society, Chinese society began to learn advanced Western ideas, new schools and modern industries began to emerge, and the vocational education model of study and work began to appear. During this period, schools started as the primary location for vocational education and formed a modern vocational education model with equal emphasis on skills and knowledge.

The third stage: From the 1920s to the late 1980s, Chinese society experienced significant events. Before founding the People's Republic of China, WIL mainly focuses on work and study simultaneously. After the founding of New China, the WIL, which combined professional theoretical knowledge with practical work, was gradually promoted across the country. In the early stage of reform and opening up, vocational education mainly developed a training mode focused on the study and supplemented by profession, which led to vocational education gradually moving away from enterprises and the market.

The fourth stage: From 1990 to 2000, vocational education in China took the path of WIL. In October 1992, the State Council clarified that vocational education and training should implement WIL, which combines industry and education. From 2002 to 2004, the China's Ministry of Education proposed that vocational colleges should further strengthen the connection with enterprises and strengthen students' industrial and social practice. The Chinese government promoted the WIL mode vigorously. The symposium on vocational education of the Ministry of Education in 2005 represented that WIL was the primary mode of talent training in China's higher vocational education.

3 Different types of IEIM

As a new concept in China, the education community has not reached a standard agreement on the application of IEIM. Different higher vocational colleges (HVCs) may have different understandings of IEIM, which leads to the core content of IEIM varying from one HVC to another. Even an HVC may have more than one IEIM approach. Nevertheless, this article summarizes six types of IEIM from the literature review, as indicated in the following.

The first type of IEIM is called Technical Cooperation Mode (TCM), which emphasizes the research and development project owned by HVC and enterprise. By sharing the resources from both parties, HVC and the enterprise conduct R&D on the new products, processes, or materials.

The Science and Technology Project Mode (STPM) is the second type of IEIM, which is similar to the TCM approach. However, STPM does not carry out an invention project but focuses on solving technical problems during production activities. STPM is a popular choice for medium and small enterprises due to capital constraints and technology restrictions for tackling and solving technical problems alone.

Modern Apprenticeship (MA) mode is regarded as a type of IEIM and can be a Chinese version of the German Dual Training System (DTS). In this training mode, each student plays dual roles, the student in HVC and an apprentice in an enterprise. For the first half the year, students learn theoretical knowledge in HVC, and for the rest half the year, they become apprentices in the enterprise and complete job tasks under the guidance of enterprise coaches. In the final year, students learn the core technology of the enterprise [3][4].

Vocational Education Group Mode (VEGM) refers to a vocational education joint venture set up by HVC with one or more external parties. The external parties include enterprises, industry-linked associations, research institutions, government institutions, and non-governmental organizations [5]. Each party has its shares in the joint venture and involves in the management of the vocational education group

Wang (2021) considered the Co-establishing Training Base (CTB) as one of the IEIM [6]. HVC and enterprise set up a separate training base to train students on specific technical skills. Compared with VEGM, which offers a variety of training programs, CTB usually provides technical training required by the collaboration partner.

The last IEIM is establishing a secondary college (academic faculty) between the HVC and the enterprise. This training mode can motivate enterprises to engage in the entire process of talent training actively. However, further study is needed to explore the effectiveness of this training mode, especially in producing highly skilled workers.

4 Advantages and challenges of IEIM

The six typical types of IEIMs are the specific practice of WIL in China's HVCs. By carrying out IEIM, the talent training outcome can be improved to a certain extent. However, schools or enterprises may have different understandings during cooperation, which may lead to the unexpected result of the talents cultivated by IEIM.

Education and industry undertake different social functions. On the one hand, the industry creates material and cultural wealth to meet people's growing needs. On the other hand, education provides the industry with qualified human resources. The enterprise serves social reproduction, and education helps the enterprise by training talents. Significantly, higher vocational education serves enterprises the highly skilled talents who can manage and work on the frontline. Through IEIM, HVCs and enterprises can work closely to eliminate the discrepancy between the positioning of talent training in HVCs and the industry's talent needs. For schools, the graduates trained by IEIM can adapt to the job faster with a shorter talent training cycle. The skills and knowledge of talents can match the enterprise requirements better, which results in a higher employment rate for schools.

Meanwhile, there are certain advantages for enterprises collaborating with schools through IEIM. First, it can fully integrate the talents in schools and enterprises to overcome some R&D projects and achieve the expected cooperative outcome by allocating resources more scientifically. Second, the continuously high-quality skilled talents can undertake jobs directly without extra investment in the enterprise's training costs. At the same time, competent work skills can improve the production efficiency of the enterprise, which leads to profitability improvement.

IEIM is a practical pathway to bridge the gap between schools and enterprises, especially in talent training. It can also effectively integrate resources between schools and enterprises to create a win-win situation. The development of IEIM in China's HVCs still faces specific challenges due to the differences in social functions between schools and enterprises. Firstly, some enterprises do not know how to participate in IEIM with suitable HVCs due to their limited understanding of IEIM. Secondly, although there are currently six IEIMs, these practices are only the exploration of IEIMs by various schools and enterprises, so the final standard of IEIM has not been formed yet.

5 Conclusion

Generally speaking, the development of IEIM has experienced three phases which can be regarded as "blending in - accommodating - integrating into China's engineering education". The core duty of IEIM is to solve the discrepancy between talent training in higher vocational education and the actual talent needs of the enterprises. Through IEIM, HVCs and enterprises can deepen their mutual understanding and resource sharing, forming a cyclical talent training pattern. With the continuous deepening research on IEIM, more empirical research has been carried out. The article summarizes the current six types of IEIM in higher vocational education, which are the exploratory practices of IEIM in higher vocational

education. Based on these practices on IEIM, it is urgent to investigate a large amount of first-hand data and implement data analysis to provide practical and effective suggestions for higher vocational talent training in the next decade.

Acknowledgments

Fund Project: Sino-foreign Humanities Exchange Center of the Ministry of Education and the "Belt and Road" Vocational Education Development People-to-People Exchange Project, Fund No.: 2022-IIPERVED-09.

Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

References

[1] Lu JY. 2009. Definition of vocational education. *Education and Occupation*, 2:5-7. doi: CNKI: SUN: JYYZ.0.2009-02-002.

[2] Geng Z. 2007. The historical development and practice of the combination mode of vocational education and engineering in China. *Vocational Education Newsletter*, 3:26-28

[3] Miu K. 2015. Research on the training mode of modern apprenticeship talents in higher vocational colleges based on the integration of industry and education and double certificates. *Cultural and Educational Materials*, 29:74-75. doi: CNKI: SUN: WJZZ.0.2015-29-033.

[4] Li J, Liu YP. 2017. Research on the establishment and guarantee mechanism of modern apprenticeship in the integration of industry and education. *Statistics and Management*, 4:183-184. doi: 10.16722/j.issn.1674-537X.2017.04.062.

[5] Zhu H, Li Y. 2020. Reflections on the school-enterprise cooperation model under the vocational education group framework. *Journal of Liaoning Higher Vocational*, 2:13-15. doi: CNKI: SUN: LNGZ.0.2020-02-004.

[6] Wang XH. 2021. How to build a training base jointly built by schools and enterprises. *Human Resources*, 12:28-29. doi: CNKI: SUN: RLZY.0.2021-12-017.