Higher Education and Oriental Studies (HEOS) – Vol 3(1): 54 – 67
www.heos.asia/ojs
e-ISSN 2785-9118
http://doi.org/10.54435/heos.v3i1.93

A Systematic Review: Modern Apprenticeship Program in China

WANG YAN
Jiaxing Vocational and Technical College, China
17161791@qq.com

Date Received: 28 December 2023 *Date Accepted: 27 January 2023* *Date Published: 28 February 2023*

ABSTRACT

China's "modern apprenticeship system" has recently gained much scholars' attention. However, the available literature focused on vocational institutions situated in metropolitan cities and provided fruitful conclusions based on location. A dearth of studies is observed in explaining and differentiating the Chinese apprenticeship system, its evolution, and its impacts on the young Chinese workforce. Therefore, this review paper is an academic contribution to present the background information on the Chinese apprenticeship system, its progress, observation of project outcomes, analysis, and suggest a future direction for academicians to extend research. The analysis of existing literature provided an understanding of ambiguities in the apprenticeship system, and the paper recommends integrating academia, industry, and students for better implementation of the apprenticeship system. Additionally, the review paper also highlights the challenges faced by the Chinese apprenticeship system, such as the lack of standardization, inadequate support for apprentices, and insufficient recognition of vocational education. The paper suggests possible solutions to address these challenges, including strengthening the role of industry associations, promoting cross-regional cooperation, and improving the evaluation and certification mechanism. Overall, the paper aims to contribute to the literature on the Chinese apprenticeship system and provide insights for policymakers, practitioners, and scholars to improve the quality and effectiveness of the system.

Keywords: modern apprenticeship system; China; vocational education; industry-academia association; practical learning

INTRODUCTION

Apprenticeships in various areas and vocations, such as painting, carpentry, plumbing, medical, law, and doctoral education, have been used to facilitate teaching and learning in various traditions (Anderson et al., 2019). Apprenticeship is a technique of on-the-job, reality-based training in which a trainee gains abilities under the supervision of an expert or trade (van Berkum & de Jong, 1991). Its idea is that the expert, or experienced workers, exhibit, observe, and assist less-skilled others in achieving their objectives (Saadati et al., 2015) & (Ibrahim et al., 2020).

However, with the passage of time, the traditional apprenticeship revolutionized and now the relationship between skills, abilities and economic growth, innovation, entrepreneurship, and corporate productivity are interlinked (Xue & Larson, 2015). Therefore, academic institutions and industries have become increasingly conscious of the relationship between skills and corporate performance. In addition, jobs have become more challenging, and the job market has been saturated and focused on skills. As a result, there has been a rapid trend toward skills-based education (Puchert, van Niekerk, & Viljoen, 2021). Likewise, different countries took the initiative and expanded apprenticeship programs, such as Australia, Denmark, and England increased the scope beyond young people; Austria, France, Germany, Switzerland, and Turkey focused on young people; US and Canada included apprenticeship as a way of up-skilling adults already in work.

Apprenticeships as education models are already well-recognized and focused on occupational training for youngsters. Therefore, countries initiated programs and projects according to their needs and available young workforce. Resultantly, it bestowed youngsters with practical industry experience (Chan, 2013). The educational institutions expanded the scope to enrich students' professional skills and meet the growing demands of industry and skilled human resources(Berglund & Loeb, 2013).

The governmental efforts generated public interest in apprenticeships, and youngsters showed keen interest in vocational education and training. On the other side, apprenticeships encourage young engagement by reducing structural unemployment and facilitating the transition from school to work. Additionally, combining theoretical, practical, and classroom-based learning with work-based learning offers motivational and cognitive benefits, which contribute to the apprenticeship's educational advantages. Furthermore, from the perspective of businesses, apprenticeship often yields greater financial returns, decreases the cost of education and training, and minimizes the time required for recruiting compared to either full-time vocational school or basic on-the-job training.

Likewise, there is a demand for technical workers in China, and the labor market has significantly demanded skilled workers. However, there is a severe shortage of highly qualified workers, and the employment situation is dire. The Chinese government, over time, initiated projects and amended policies to strengthen apprenticeship. Additionally, colleges, vocational institutions, and higher educational institutions paid much attention to skilled-based education, accelerated academia-industry cooperation programs, and revised policies to gain maximum benefits. Owing to the benefits and advantages of apprenticeships, the growing industry sector and changing nature of the workforce also transformed the traditional apprenticeship system. As a result, the school vocational education paradigm has come to dominate, and the concept of "modern apprenticeship" was developed to meet the growing challenges of large-scale production industries (Zhang & Yu, 2020). Compared to traditional apprenticeships, modern apprenticeships combine employment training with vocational education, non-formal training with formal education, and lifelong education with lifelong education (Sun & Guo, 2020; Ling et al. , 2021).

The current paper focuses on the apprenticeship program in China, its current status, challenges, and prospects. China has initiated a comprehensive apprenticeship project in partnership with ILO as the "Quality Apprenticeship and Lifelong Learning in China", which aims to i) build the capacity of the government, employers' and workers' organizations in the fields of quality apprenticeship and core skill development; ii) adapt and pilot ILO global and regional tools in quality apprenticeship and skill development to the Chinese context including an e-course targeted at enterprise managers and HR leads; iii) complete research on China New Apprenticeship Program to identify best practices and provide policy recommendations. This reflects the seriousness of the Chinese government in implementing an impactful apprenticeship policy for skill development and upgrading.

The researchers and scholars also evaluated the impacts of apprenticeship programs. Therefore, the current review paper is an academic analysis of the modern apprenticeship program in China, presenting its effects and recommending future directions. The paper reviews the traditional and current concept of Apprenticeship in China and its past and future challenges according to Chinese emerging status worldwide.

DEFINING APPRENTICESHIP

The educational system is comprised of vocational and general education, and apprenticeship is considered part of vocational education (Ryan, 2000). However, it is challenging to define apprenticeship and compare it across countries, cultures, and regions. CEDEFOP is one of the

autonomous EU bodies working to promote the developing and implementation of the European vocational education and training (VET) policy (Boström et al., 2001).

CEDEFOP in 2014 included "Dual" with "VET" and defined as an apprenticeship based on three characteristics, such as: (a) "learning that alternates between the workplace and an educational or training institution; (b) a component of formal education and training; and (c) learners achieve a qualification and an officially recognized certificate upon successful completion" (CEDEFOP, 2013).

"Dual" refers to vocational schools and enterprises contributing to the learning process(CEDEFOP, 2015). However, while specifically mentioning and defining Apprenticeship, CEDEFOP (2016) included two additional features, one status of apprentices as employees and wages; secondly, a formal agreement between employer and learner.
Likewise, ILO (International Labour Organization) strengthened robust social dialogue and public-private partnerships to foster apprenticeship to help young people overcome the work-inexperience trap and gain industry experience (Steedman, 2013).

The ILO defined apprenticeship in its Apprenticeship Recommendation (R60, 1939) as follows:
"*the expression apprenticeship means any system by which an employer undertakes by contract to employ a young person and to train him [or her] or have him [or her] trained systematically for a trade for a period the duration of which has been fixed in advance and in the course of which the apprentice is bound to work in the employer's service*." (Para.1)

This definition by ILO emphasizes a supervised workplace for youngsters and aims to enhance their skills; however, it also recommends a defined plan and formal agreement to obtain desired outcomes. Though later, the definition and explanation of apprenticeship changed, and ILO (R117, 1962), restated it as "Systematic long-term training for a recognized occupation taking place substantially within an undertaking or under an independent craftsman should be governed by a written contract of apprenticeship and be subject to established standards." (Para. X. 46)[1]

Organizations, academia, and scholars suggested a more formal, comprehensive, and regulated apprenticeship program to continue enhancing skills according to changing demands of times (Ryan et al., 2013). As a result, the gradual expansion and partnership of academia and industry are more formalized, and practical training has become an integral element of the educational system worldwide.

APPRENTICESHIP IN CHINA

In China and Europe, apprenticeships have existed for millennia. It primarily existed in the manual trades related to the crafts and merchants' guilds. There are several accounts of apprenticeships in China under the Tang and Song dynasties (618–906; (960–1279), the Ming and Qing dynasties (1368–1644; 1644–1911), and the Qing dynasty (1644–1911). Apprenticeship was the primary method of "skills development" in pre-industrial times.
The Chinese apprenticeship system dates back to the Qin period (200 BC) (Sutrisno et al., 2021). Apprenticeship has been the primary approach to training handcraft workers for

[1] The most recent ILO recommendation (R195) makes no reference to apprenticeship and focuses on lifelong learning and the upgrading of the skills of those already in the labour force. Young people are mentioned only as a one of a number of groups with nationally identified special needs. The recommendation reflects concern over the increasing vulnerability of the low-skilled in the labour force in the face of skill-biased technological change, particularly in more developed economies. Recently, and in particular since 2007, concern over high levels of youth unemployment has led to much greater interest in apprenticeship.

centuries in China, providing hand-on-training, teaching on sight, and learning by heart and mind (Liu & Schuppener, 2019). However, apprenticeships in traditional trades and works can still be observed in China. After China's independence, the Chinese government employed an apprenticeship approach to training skilled workers in a planned economy.

As a result of educational reforms, the Chinese government initiated intensive reforms to strengthen vocational education as well, and in 2014 an initiative to build "modern apprenticeship" was taken. It was reported that more than ten million students entered into vocational colleges; therefore, comprehensive planning and policy were much needed (Ministry of Education of the People's Republic of China, 2014). Although the Chinese government paid great attention to upgrading skills, apprenticeship has been a leading approach to training workers in a planned economy(Wang & Mu, 2014).

The traditional Chinese apprenticeship model from the 1950s to 1960 was a liaison between factories and the government. This procedure involved a request from the factory, and after the government's approval, the screening process was carried out. Time duration and curriculum were based on the national curriculum framework. The reports revealed that over 7 million technical workers obtained training through apprenticeship programs till the 1960s (Guo & Wang, 2020). However, gradual amendments in the apprenticeship programs during the 1980s focused more on training before work and emphasized the formal school system to adopt apprenticeships (Zhao, Luo, & Gu, 2013). Resultantly, the skills of youngsters were enhanced in terms of knowledge acquisition and practical capabilities (Wei et al., 2022).

In another experiment, the Ministry of Education of the People's Republic of China 2015 selected more than 5,000 students from 165 schools to test the effectiveness of apprenticeships. Later, in 2017, 203 groups of students were formed to examine the impacts of apprenticeships (Ministry of Education of the People's Republic of China, 2018). These initiatives aim to upgrade the apprenticeship system, which benefits both the business and the school. The employer gets skilled workers during the apprenticeship and a pool of potential employees afterward. Likewise, positive relationships and partnerships are fostered between the local government and industries, which is especially crucial in the Chinese environment.

REVIEW OF APPRENTICESHIP PROJECTS

After the worldwide recognition of Apprenticeship, China acknowledged the effectiveness of apprenticeship in narrowing the gap between industry and skilled workforce. As a result, China's Ministry of Education (MoE) and the Ministry of Human Resources and Social Security (MoHRSS) implemented an apprenticeship system to equip industrial personnel with talents and skills.

The report "*Suggestions on Implementing the Pilot Project of Modern Apprenticeship (MA)*" by the Ministry of Education stated four requirements, such as "(a) to facilitate the integration of students' enrollment and apprentices recruitment and encourage schools and enterprises to jointly make recruiting plans; (b) to deepen the reform of "work-integrated learning" model, motivating schools and enterprises to sign a cooperation agreement to undertake the instruction task and skills training together; (c) to strengthen the construction of the teaching staff, consisting of teachers from schools and masters from enterprises; (d), to form an administration and operation mechanism suitable and favorable for a modern apprenticeship" (MoE 2014). This apprenticeship pilot plan was mainly conducted by educational training institutes and supplemented by enterprises (MoE 2014).

The Modern Apprenticeship (MA) project was carried out in three phases in 2015, 2017, and 2018 by educational training institutes and supplemented by enterprises. The responsibilities were shared among the stakeholders, such as local educational authorities, prepared supportive policies, and developed various standards and rules to normalize the

operation of modern apprenticeship among industrial organizations. Conversely, the vocational schools worked and planned for skills development. Lastly, the organizations participated in implementing the process and adopted operational and innovative approaches and mechanisms. Therefore, the criterion was set, and organizations with ample and advanced facilities, qualified teaching staff, and well-established vocational training systems were chosen to foster the MA project.

Likewise, the Ministry of Human Resources and Social Security and the Ministry of Finance 2015 initiated Implementing Enterprise-led New-type Apprenticeship (ENA) Pilot Project to upgrade the skilled workforce according to evolving industry and to ensure employment stability. After a year, both ministries started the second pilot project and expanded ENA, including more provinces and large and medium-sized enterprises. The selection of enterprises was based on a few conditions to obtain the desired outcomes. It was ensured that organizations must have sufficient resources for developing skilled talents, well-trained staff, and an incentive mechanism of wages. In this project, every selected organization trained 100 participants in the apprenticeship program and recruited these trained employees for more than six months (MoHRSS & MoF 2015).

In MA and ENA, educational institutions and enterprises collaborated, including vocational schools, vocational training institutions, and industrial training centers. This collaboration's objective was to develop a new model of employee training by emphasizing the primary role of the private sector. The organizations and firms signed training agreements with apprentices. A complete set of rules were written in the agreement, including objectives, content, duration, and assessment method. In addition to the training agreement, companies and training institutions agreed to the flexible credit system, and the apprentices were educated by both workplace trainers from businesses and school instructors from training institutions. The duration of this training was one and two years, but in exceptional cases, it lasted up to three years. The unique training content and curricula included professional knowledge, operational skills, production requirements, regulations, vocational literacy, and core competencies. Apprentices of ENA who passed the assessment were awarded the necessary vocational certifications.

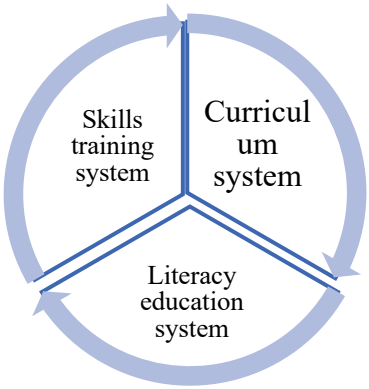
MODERN APPRENTICESHIP IN CHINA

Modern apprenticeship is "modern" relative to "traditional." Apprenticeship, as its name suggests, is a sort of apprenticeship in which the master teaches apprentices practical skills in person - a precursor to vocational education. This learning method is the most prevalent in the traditional handcrafting business. However, apprenticeship gradually disappeared from the stage of social-economic development as the social economy, industrial production, and school instruction advanced. In today's highly respected high-skilled people training, this old skill training approach has been rediscovered, producing a comprehensive body of professional education and vocational training based on the interaction between mentoring and apprenticeship. It is also an essential conduit for professional schools and industry companies to engage in deep cooperation and seek a win-win situation.

Modern apprenticeship effectively deepens school-enterprise cooperation(Haltia et al., 2022). A comparative analysis of apprenticeship systems in 11 countries by the International Labour Organization and the World Bank (Blanton et al., 2015). shows that modern apprenticeship can be applied to almost every profession. Moreover, the school-enterprise cooperation training mode in some western countries, such as the "dual system" in Germany, the "registered apprenticeship" in the United States, and the "modern apprenticeship" in the United Kingdom, has accumulated a lot of experience in school-enterprise cooperation education (Lou, 2018).

Worldwide, "apprenticeship" gained attention for educational and skill enhancement; likewise, since 2014, "Modern Apprenticeship" in vocational colleges in China has achieved good results. The mode of modern apprenticeship training for vocational colleges and enterprises has been widely used in China. Through the apprenticeship system, students combine theoretical knowledge with social practice, continuously increase their practical experience, and promote their overall development (You-Jun et al., 2018).

FIGURE 1. Model of Modern Chinese Apprenticeship



SIGNIFICANCE OF THE STUDY

China's vocational education has entered the "mass culture" stage . In 2021, Chinese President Xi Jinping emphasized important instructions on vocational education. First, vocational education maximizes training and skills by intensifying teaching fusion, school-enterprise collaboration, and methods. Therefore, the administration promoted vocational integration, made vocational education more flexible, and hastened the development of a modern vocational education system. Party committees and governments innovated institutional, revised policies, and invested in promoting skilled talents. The national and long-term education development plan combines work and study, on-the-job training, and school-business collaboration. To encourage the institutionalization of school-enterprise cooperation, the school-management system of "government leadership, industry direction, and enterprise involvement" were enhanced in China.

However, scant research exists on modern apprenticeship programs in China, and an inadequate amount of empirical research on the profile of a successful apprenticeship exists. Therefore, there is, hence, a necessity for research on the profiling and selection of apprenticeship programs, understanding the suggestions of the scholars, and improving future policies. Therefore, the current review paper is an academic contribution to help policymakers, industry leaders, and academic staff to devise future strategies accordingly.

PURPOSE OF THE STUDY

Therefore, systematically exploring what scientific knowledge is available on a modern apprenticeship program in China is vital. Therefore, the primary purpose of this SLR was to establish the extent and nature of empirical research on the modern apprenticeship program. Furthermore, the authors intend to observe the empirical literature stating the impacts and related challenges to modern apprenticeship programs in China.

RESEARCH DESIGN

This study intends to "comprehensively locate and synthesize research on a specific subject or problem, utilizing organized, transparent, and replicable techniques at each step". To collect transparent and impartial literature(Atkinson & Cipriani, 2018), the study combines the methodologies offered by Tranfield, Denyer, and Smart (2003) and Al-Tabbaa, Ankrah, and Zahoor (2019). The approach comprised three steps, namely, "(1) planning the review, (2) conducting the review, and (3) reporting and dissemination".

PLANNING THE REVIEW

Tranfield et al. (2003) suggested a scoping study as an initial stage in developing an SLR. The paper's introduction underlines the topic's relevance. Next, the review procedure design includes the study's objective. Modern apprenticeship in China needs empirical evaluation. Concerning the need for a further empirical apprenticeship survey, the authors wanted to identify existing literature, address challenges, and recommend solutions.

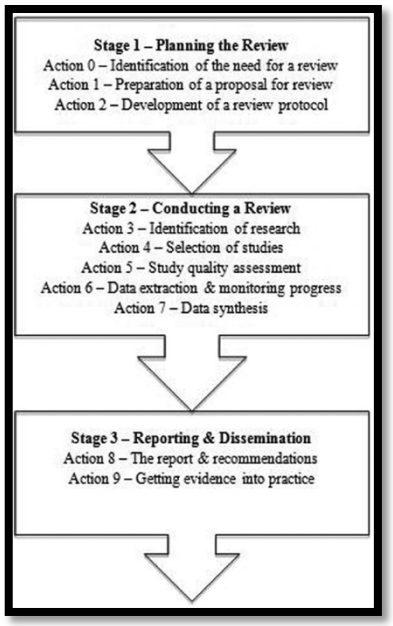
This pushed the SLR's previously-documented research goal. The writers first searched online for apprenticeships in China. Emerald, ScienceDirect, and EBSCOhost were used for this paper. About 250,000 research, including industry reports, idea papers, discussion papers, and reports, surfaced in the initial search. Only peer-reviewed English journals published between 2010 and 2020 were chosen.

Key words, search phrases, and search strings were defined in the second stage of planning (Tranfield et al., 2003). The writers utilized apprenticeship, modern apprenticeship, and modern apprenticeship in China. Scholars also proposed explaining why they excluded particular studies from their literature assessment(Okoli & Schabram, 2010). Before selection, the search approach and publishing quality are justified.

The inclusion criterion is included

- The articles must be in English, peer-reviewed, and published in WoS or Scopus journals from 2010 to 2020.
- The articles must be related to Apprenticeship in China and focused on modern apprenticeship.
- The study must be based on scientific inquiry and follow a research methodology.

FIGURE 2. Steps in the systematic literature review (Tranfield et al., 2003)



CONDUCTING THE REVIEW

The abstracts were first assessed for relevance to the SLR. If there was no link, the article was excluded, with the reason noted. If a link existed, the full-text article was checked. First, 170 articles were reviewed. Ten publications were deemed sufficient for data synthesis based on the SLR analysis. The researchers coded the final SLR article sample. The articles were initially categorized. Authors, publication year, source, amount of citations, search string, study perspective, context, sample characteristics, method, and major findings. The papers were then open-coded to identify primary themes (Dufour & Richard 2019). This iterative procedure established the research's core topics and sub-themes.

REPORTING AND DISSEMINATION

Step 3 of an SLR requires a two-phase report. Provide a descriptive analysis of the review's study range, themes, and questions(Tranfield et al., 2003). According to this proposal, the SLR data is tabulated by important concepts or categories. Describe pre-determined categories first. Second, a synthesis of article themes is offered.

Publication	Authors	Core Issues
2012	Geoffrey Gowlland	Apprenticeship for transmission of knowledge and skills.
2015	Heather B. Finn	Apprenticeship for foreign language learning and teaching .
2015	Li Mengqing, Wang Ruoyan, & Luo Li, 2015	Identification of stakeholders for successful implementation.
2017	Baochun Zhao, Keliang Zhang, Minhong Dai	The modern apprenticeship. Integrated approach and framework .
2018	Chengjun Xiang	Conflict in modern apprenticeship . Used stakeholder theory to identify three stakeholders.
2018	Yeping Li and Rongjin Huang	Apprenticeship to improve teachers' knowledge and skills .
2018	Tao Liu	Modern apprenticeship and school enterprises.
2019	Fan Yang, Xiaotao Gong, Chunling Wang, Jianfeng He	Modern apprenticeship. School-enterprise. Flawed laws.
2020	Nana Yan, Hongxing Zhang, Cong Tan	Modern apprenticeship in traditional medicine.
2020	Chenglin Zhu	Academia industry cooperation.

ANALYSIS AND DISCUSSION

From 2010 to 2020, only ten articles were found related to the discussed topic. It is also pertinent to mention here that much of the attention is given after 2015. Although this is quite an important topic, however little academic literature is available. Considering the burgeoning

apprenticeship worldwide, specifically in China, the scholars conducted few studies to document and describe the benefits. Researchers in China need to pay immense attention to the current apprenticeship system, as the SLR found several factors which played their role in fostering apprenticeship and obtaining desired outcomes.

As the apprenticeship system is collaborative between academia and industry, the school-enterprise collaboration was much discussed and observed for the successful implementation of an apprenticeship system. For example, in China, school-enterprise collaboration, which was based on equal and mutually beneficial cooperative activities for talent development and social services, resulted in an impactful apprenticeship system (Yu, 2008). Xiao Fengxiang, Xiao Yanting, and Lei Shanshan (2018) also applauded school-business collaboration as a talent development method. These researchers elaborated that school-enterprise collaboration is imperative for the combined training of talents and enhancing the system further for benefits and resource sharing between schools and firms. According to some researchers, this is an impactful training method; for example, Li Dongmei (2018) argued that school-enterprise collaboration is a method of education that cultivates high-quality talent via cooperation between schools and enterprises (Li, 2008). Furthermore, Li Mengqing and others argued that school-enterprise collaboration is an efficient method for implementing the new apprenticeship system and an unavoidable prerequisite for adapting vocational education to economic and social growth (Li et al., 2015).

The academic debates continued to assess the effects of the modern apprenticeship system in China and evaluated the contributory factors for the promotion of talent training. Lu Zizhou (Lu & Cui, 2018)emphasized that the practical training mode is crucial and fulfills the project's objective of effectively implementing the modern apprenticeship system. As the modern apprenticeship system represents a novel kind of teacher-student connection, Xu Guoqing (Xu, 2017), for example, considers the modern apprenticeship system must be focused on practical talent training and must combine new and innovative methodologies to upgrade. Opposite to the conventional apprenticeship talent training model, academics such as Lin Li have examined modern apprenticeship's essential talent training methods from six perspectives. (1) Deepen school-enterprise cooperation and build a platform for modern apprenticeship talent training; (2) Establish a modern apprenticeship talent training assessment and evaluation mechanism with multi-participation; (3) Establish a modern apprenticeship talent training mode with both school and enterprise as the main body; (4) Construct a curriculum system that focuses on ability improvement; (5) Construct an institutional guarantee system that is conducive to the identification of talent (Lin, 2017). Wang Xuefeng and others noted, in terms of practical exploration, the implementation of the modern apprenticeship talent training mode requires measures including joint school enterprise enrollment (Wang et al., 2020).

In continuity, the government bodies also emphasized deepening the integration of schools and industry to achieve the desired outcomes and promote more skills-oriented jobs in China. As a result, the educational reforms in formal and vocational learning remained more centered on talent training than traditional teaching modes (General Office of the State Council, 2017). The integration and merger of academia and industry tighten and strengthen the relationship and also foster the modern apprenticeship system. This collaboration resulted in a joint venture of schools and enterprises for the implementation of the modern apprenticeship system in China, which brought fruitful effects on society and the economy as well. However, this partnership and collaboration gradually moved beyond borders, and the modern apprenticeship system has facilitated "cross-border integration" between industry and education (Lou, 2018).Therefore, in recent years, the integration of industry and education has created opportunities for the development of vocational education and higher education, promoted the development of a modern apprenticeship system and the integration of industry

and education, and trained a number of talents in the application of vocational skills for the benefit of society.

CHALLENGES FOR APPRENTICESHIP PROGRAMS IN CHINA

In the rapid transformation and upgrading of China's industry, workers need new knowledge and skills that can structure into society's needs. However, in the context of the change in the modern industrial economy, there is a shortage of high-quality skilled workers . Higher vocational education obtains special support and input from the government, enterprises, industries, and social organizations by strengthening close cooperation with enterprises and Over the past eight years, each district has taken measures according to local conditions, explored the diversified implementation path of modern apprenticeship from the development characteristics of the school and the regional industry, and accumulated some valuable experience worthy of promotion. Still, some problems affect the development of apprenticeships. The main issues are as follows:

LACK OF GOVERNMENT AND INDUSTRY ASSOCIATIONS

Although China has formulated relevant systems to promote school-enterprise cooperation vigorously, there are some problems at the government and industry level compared with other countries where the apprenticeship system is relatively mature. Remarkably, the association between government and industry lacks, and below issues mentioned are visibly observed.

(1) There is a dearth of national-level rules, regulations, and institutional standards on contemporary apprenticeship, and the architecture of the national top-level system leaves much to be desired.
(2) The management organization of the apprenticeship system is unknown, and local government's fiscal and tax support policies are different.
(3) The training of apprenticeship system lacks unified national professional teaching standards and certification system and is not fully integrated with national vocational qualification and "X" certificate system.
(4) The enthusiasm of industry associations to participate in modern apprenticeships is not high, their interest needs are not fully satisfied, and the relevant systems and rules are not sound.

As a result, the industry association does not play its due role in the integration of modern apprenticeship enrollment and recruitment, the construction of the standard system, the building of a "double tutors" team, and the construction of a management mechanism .

IMBALANCE MECHANISM BETWEEN SCHOOL AND ENTERPRISE

The primary organizations involved in the growth of contemporary Apprenticeships in China are vocational colleges and businesses. It has been shown that under the existing apprenticeship system's functioning, the interest matching level between the two parties is poor, and that most apprentices are "hot" in the classroom but "cool" in the workplace .

The level of interest connection between higher vocational institutions and businesses grows in tandem with the length of time they work together. Nonetheless, factors such as investment costs, wages, apprenticeship retention period, standardization and certification of enterprises' specific and common skills, labor market competition, and product competition all influence enterprises' participation in apprenticeship training as cooperation deepen. Since the construction of modern apprenticeship, if the balance mechanism of school-industry interests

is imperfect, enterprise investment and income will be inequitable for a long time, which will greatly affect the enthusiasm of enterprises to participate in apprenticeship training.

LACK OF COMMUNICATION, COORDINATION, AND INCENTIVE MECHANISM OF STAKEHOLDERS (TEACHERS, STUDENTS, PARENTS)

In the modern apprenticeship, it is found that the main reasons for apprentice dropout are poor working conditions, low support from teachers, and workplace relationships. Other apprentices dropped out because of conflicts with colleagues or supervisors and complaints about inadequate training opportunities in the workplace. In addition to the above factors, the performance of apprentices is also affected by the views of parents and teachers. Most problems can be solved through timely and effective communication, but it is often counterproductive because there is no good communication and coordination mechanism among stakeholders. Besides, some school and enterprise teachers are not enthusiastic enough to participate in the school-enterprise collaboration as there is no sound incentive system for teachers who participate in school-enterprise cooperation.

CONCLUSION

As the review paper presented the evolution of the apprenticeship system in China and discussed various projects. The overall effects of these projects resulted in an immense impact on the learning and skills of Chinese youngsters. In addition, these projects blessed China with a skilled workforce, improved its socioeconomic status, and reduced poverty and unemployment. The industry evidence and academic studies both applauded the apprenticeship system in China, and also recommended measurements to make it up to worldwide standards. The review also concludes and suggests further studies on the development and assessment of the "modern apprenticeship system". Currently, available literature on the modern apprenticeship system is limited. Mainly, the studies are focused on developed areas in the East, such as Shanghai and Hangzhou, with relatively affluent results. However, the research results of underdeveloped regions are pretty different and suggest further studies to observe the impacts of apprenticeship.

However, based on the available literature, the paper provided an in-depth analysis of the problems and concluded to strengthen the cooperative research of institutions, academicians, and industry. Additionally, the main focus of researchers is on higher vocational education and pays less attention to secondary vocational education while exploring the benefits of the "modern apprenticeship system". Colleges and schools should be included in the research analysis.

Lastly, to overcome existing issues in the modern apprenticeship system, special attention should be given to technical colleges, talent training mode, integration of industry and education, and curriculum.

REFERENCES

Anderson, M., Campbell, S. H., Nye, C., Diaz, D., & Boyd, T. (2019). Simulation in Advanced Practice Education: Let's Dialogue!! Clinical Simulation in Nursing, 26, 81–85. https://doi.org/10.1016/j.ecns.2018.10.011

Atkinson, L. Z., & Cipriani, A. (2018). How to carry out a literature search for a systematic review: A practical guide. BJPsych Advances, 24(2), 74-82. doi: 10.1192/bja.2017.3.

Berglund, I., & Loeb, I. H. (2013). Renaissance or a backward step? Disparities and tensions in two new Swedish pathways in VET. International Journal of Training Research, 11(2), 135–149. https://doi.org/10.5172/ijtr.2013.11.2.135

Blanton, R. G., Blanton, S. L., & Peksen, D. (2015). The Impact of IMF and World Bank Programs on Labor Rights. Political Research Quarterly, 68(2), 324-336. doi: 10.1177/1065912915578462.

Boström, A. K., Boudard, E., & Siminou, P. (2001). Lifelong learning in Sweden.

CEDEFOP. (2013). Spotlight on VET Ireland. Retrieved from http://www.cedefop.europa.eu/EN/publications/21006.aspx

CEDEFOP. (2015). APPRENTICESHIP Signposting the apprenticeship path in Lithuania.

Chan, S. (2013). Learning through apprenticeship: Belonging to a workplace, becoming and being. Vocational Learning, 6(3), 367–383. https://doi.org/10.1007/s12186-013-9100-x

Guo, D., & Wang, A. (2020). Is vocational education a good alternative to low-performing students in China? International Journal of Educational Development, 75(March), 102187. doi: 10.1016/j.ijedudev.2020.102187

Haltia, N., Isopahkala-Bouret, U., & Jauhiainen, A. (2022). The vocational route to higher education in Finland: Students' backgrounds, choices and study experiences. European Educational Research Journal, 21(3), 541-558. doi: 10.1177/1474904121996265.

Ibrahim, N. N., Ayub, A. F. M., & Yunus, A. S. M. (2020). Impact of Higher Order Thinking Skills (HOTS) Module Based on the Cognitive Apprenticeship Model (CAM) on student's performance. International Journal of Learning, Teaching and Educational Research, 19(7), 246-262. https://doi.org/10.26803/IJLTER.19.7.14

Li, D. (2008). School enterprise cooperation is a platform for higher vocational colleges to train high skilled talents. Education and Occupation, 000(035), 157-158.

Li, M., Wang, R., & Luo, L. (2015). Exploration and practice of Chinese localization of modern apprenticeship. Vocational Education Forum, 000(001), 76-81.

Lin, L. (2017). An analysis of modern apprenticeship talent training mode. China University Science and Technology, 000(011), 65-67.

Ling, Y., Hui, Z., & Xianshun, B. (2021). From Traditional Growth to Sustainable Development: 20 Years of Higher Education in China (1999–2019). Higher Education and Oriental Studies, 1(1).

Liu, X., & Schuppener, L. L. (2019). Adapting and evolving-learning place cooperation in change: A comparative study of the vocational and educational training system in China and Germany. International Journal of Information and Education Technology, 9(9), 599–606. doi: 10.18178/ijiet.2019.9.9.1274

Lou, M. (2018). Modern apprenticeship system: System innovation to solve the problem of "two skins" in the integration of industry and education. China Vocational and Technical Education, 686(34), 56-60.

Lu, Z., & Cui, Y. (2018). Current situation, problems and prospects of modern apprenticeship research in China. Education and Occupation, 000(020), 45-51.

Okoli, C., & Schabram, K. (2010). Working Papers on Information Systems A Guide to Conducting a Systematic Literature Review of Information Systems Research. Working Paper Series on Information Systems, 10(2010). doi: 10.2139/ssrn.1954824.

Puchert, J., van Niekerk, R., & Viljoen, K. (2021). Apprentice selection: A systematic literature review from 1990 to 2020. Acta Commercii, 21(1), 1-13. https://doi.org/10.4102/ac.v21i1.932

Ryan, C. (2000). Where to next? Graduate outcomes from the Australian higher education and vocational education and training sectors. Retrieved from https://www.ptonline.com/articles/how-to-get-better-mfi-results

Ryan, P., Backes-Gellner, U., Teuber, S., & Wagner, K. (2013). Apprentice pay in Britain, Germany and Switzerland: Institutions, market forces and market power. European Journal of Industrial Relations, 19(3), 201–220. doi: 10.1177/0959680113494155

Saadati, F., Tarmizi, R. A., Ayub, A. F. M., & Bakar, K. A. (2015). Effect of internet-based cognitive apprenticeship model (i-CAM) on statistics learning among postgraduate students. PLoS One, 10(7), e0129938. https://doi.org/10.1371/journal.pone.0129938

Steedman, H. (2013). Overview of Apprenticeship Systems and Issues ILO Contribution to the G20 Task Force on Employment. SSRN Electronic Journal, 2012(November). doi: 10.2139/ssrn.2283123

Sun, J., & Guo, J. (2020). The fusion of craftsmanship and student professional skills based on computer technology from the perspective of modern apprenticeship. Journal of Physics: Conference Series, 1648(2). https://doi.org/10.1088/1742-6596/1648/2/022119

Sutrisno, Winahyo, A. E., Dardiri, A., Ismail, A., & Harun, M. I. (2021). The perception level of thinking models in general and vocational education. Estudios de Economía Aplicada, 39(10), 1–12. doi: 10.25115/eea.v39i10.5563

Tranfield, D., Denyer, D., & Smart, P. (2003). Synchronous Computer Mediated Communication in English Language Classes During the Pandemic: A Case Study of Wuhan. British Journal of Management, 14, 207-222. doi: 10.1007/978-3-030-92836-0_28.

van Berkum, J. J. A., & de Jong, T. (1991). Instructional environments for simulations. Education and Computing, 6(3-4), 305-358. https://doi.org/10.1016/0167-9287(91)80006-J

Wang, X., Li, Z., & Wang, G. (2020). Research on Modern Apprenticeship talent training in Higher Vocational Colleges. Education Theory and Practice, 40(21), 24-26.

Wang, Y., & Mu, G. M. (2014). Revisiting the Trajectories of Special Teacher Education in China through Policy and Practice. International Journal of Disability, Development and Education, 61(4), 346–361. doi: 10.1080/1034912X.2014.955792

Wei, Y., Lai, X. Y., Li, X. Q., & Zhang, P. X. (2022). An Assessment of Online Learning Competency among Students of Higher Vocational and Technical School in China. Journal of Technical and Higher Education, 3(1), 17-25.

Xiang.Gang, W. (2022). Internationalisation of Higher Education of China and its Tendency Towards Westernisation. Higher Education and Oriental Studies, 2(5).

Xu, B., & Li, Y. (2018). Knowledge atlas of rural small-scale school research—visual analysis based on CiteSpace. Education Theory and Practice, 38(28), 28-33.

Xu, G. (2017). Key issues in the construction of modern apprenticeship system of Vocational Education in China. Journal of East China Normal University (Educational Science Edition), 2017(1), 00240.

You-Jun, B., Yan, Z., & Shi-Hao, L. (2018). Exploration of modern apprenticeship in automobile repair major in higher vocational education in China. MATEC Web of Conferences, 175. doi: 10.1051/matecconf/201817502013.

Yu, Z. (2008). Progress, problems and improvement of establishing a long-term mechanism of school enterprise cooperation in Vocational Education. Vocational and Technical Education, 33(33), 45.

Zhang, M., & Yu, X. (2020). The construction of teaching quality evaluation system of modern apprenticeship based on big data. Journal of Physics: Conference Series, 1578(1). https://doi.org/10.1088/1742-6596/1578/1/012124

Zhao, Z., Luo, Z., & Gu, D. (2013). Innovative Models of More Interactive Cooperation of VET Schools and Enterprise in China. In Technical and Vocational Education and Training (Vol. 18, pp. 193–205). doi: 10.1007/978-94-007-5398-3_13

ABOUT THE AUTHORS

Wang Yan (1980) currently serves as a Professor in Jiaxing Vocational and Technical College. She was a PhD student in UITM and she majored in Educational Philosophy.